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Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIV. CHICAGO, ILL., SEPTEMBER 22, 1914. Number 10.

SPECIAL FEATURES OF THIS NUMBER

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Rock Products and BUILDING MATERIALS

INCORPORATING DEALERS BUILDING MATERIAL RECORD

Volume XIV. CHICAGO, SEPTEMBER 22, 1914. Number 10

PUBLISHED SEMI-MONTHLY.

DEVOTED TO

Quarry Products, Cement, Lime, Plaster, Sand and Gravel, Clay Products and Building Specialities—Fireproof Building and Road Construction.

THE FRANCIS PUBLISHING COMPANY.

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Communications on subjects of interest to any branch of the industry are solicited and will be paid for if available.

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All the sand pits, not equipped with modern washing outfits, are now suffering and paying big costs on account of recent torrential rains.

A good stretch of fall weather seems to have started in. Now for some whole-hearted coöperation all along the line; the profits will take care of themselves.

Subsidence of interest in the foreign war news is the best evidence that the business interests of the country are able to stand upon their own bottoms and that we are attending to our own business with all the new opportunities that the times present.

This old republic was started on the coöperation idea. There is still some of it left in our composition, about enough to make a new start with. We need a revival of that reciprocity enthusiasm of a few years back. It is the kind of policy that is going to count most from this time forward.

The heft of the coming winter's supply of coal has already been delivered, which makes the teams and trucks available for the big rush of building materials, the like of which has never been seen before. Get busy now and your trade will respond like a fiddlestring—and make music, too.

It is more comfortable to pay a war tax without having any war, but why not call it by its right name. The tax that the president wants to have levied is an extraordinary revenue deficiency tax, nothing more, nothing less. It is not properly a war tax, because all the war belongs to other nations. Let us be thankful while we pay. But will they refund the money if they find it is not needed?

Concrete is the most dependable material known to modern times. It makes good every time it is given half a chance, but it can be mistreated and misused until it scarcely has a right to recognize itself.

The loosening of building loans all at once has put the building material market into a great rush. Liberal advertising judiciously placed right now will move out all of the overstocks promptly and make a pleasanter feeling about Thanksgiving day.

The foolish war quotations on wheat, oats, corn, sugar and meat have proved to be only quotations, for the farmers with the goods are still looking for the buyers at those prices. Quotations of the feverish speculators is one thing; handling the tonnage is something else.

Fire comes along every little while to wipe out the results of a lifetime of effort and the man affected is ready to listen about fireproof buildings, but the trouble is that too often his last chance has gone up with the smoke. There is no valid reason for anyone taking a fire risk now—except habit, and that makes the man blind.

Proper separations from certain types of limestone screenings when mixed with Portland cement and a little hydrated lime make an ideal material for exterior plastering, commonly called "stucco" exterior finish. Don't construct a wooden lath surface for exterior plastering; it can only be temporary and unsatisfactory in the end.

Improvements in quarry equipment, both at the crusher proper and in the matter of drills and handling apparatus, have made road material cheap enough. But the big item of transportation to the road contractor must not be overlooked. The big tractors, drawing a whole train of wagonloads, will often secure a contract in the first place and earn the profit on it afterwards, even at a price below the possibility of competition. Often the biggest item of cost is the hauling. Think it over some more.

Concrete highways under the state aid system are being laid in the outlying districts of Cook county, Ill., in the environs of Chicago. Inside the city there are many miles of model boulevards. The present instance is the virgin effort beyond the city limits in the way of road improvements. This is said upon the authority of observation only and refers to the roads and not to the records, which show that plenty of money has been spent upon road officials, road inspection and every other thing except road materials, machinery and labor.

With the financial situation improving and the money market growing easier every day, we have every right to expect an avalanche of fall trade activity. It is a question now to find the means to take care of business. Only those who act promptly will get the full value of the booming fag end of this quite puzzling season. The turning loose of pent-up orders right now must not be mistaken for a flash in the pan; for by the time that is taken care of properly a tremendous expansion of business will be right at hand and keep us busy all winter supplying our new export markets. We have had a long, dull period—in fact, a near panic for months—but the present quick rebound to normal conditions is the surest sign that the pendulum is swinging past the center, and that spells a boom. Get in now while the water is fine.

WITH YOU and ME

The first days of September have passed and find the majority of the mills of the Lehigh cement region again in full operation. Cement is being shipped in large tonnage with no signs of an early relaxation.

William B. Wreford, for more than three years connected with the Detroit Board of Commerce, will become manager of the Detroit Brick Manufacturers & Dealers' Association, which opened headquarters September 3 at 2016 Dime Bank building.

W. M. Spencer, who is one of the old-timers near Kansas City, operating the old Crebo outfit near Independence, leaves a trail of sparks when he visits Kansas City. He was there recently and everybody who met him said, "Spencer is busy and happy, anyway." The Spencer crusher is working full time and turning out about 1,200 yards per day.

A series of freezing tests on concrete will be carried on during the coming college year by the department of applied mechanics and machine design at the Kansas State Agricultural College. An experimental refrigerating plant which will serve this purpose, is now being installed. Research on other refrigeration problems and tests of insulating materials will also be made possible by this plant.

There have been reports that the Panama-Pacific International Exposition, because of the war in Europe, would be postponed. It will not be postponed. There have been published statements that the war in Europe would seriously affect the commercial or educational importance or the financial success of the exposition. They will not be so affected. The exposition will open on its scheduled date—February 20, 1915. It will be completely ready when open. It is more than 90 per cent completed today. Nothing will be permitted to interfere with the consummation of the plans originally laid down.

The city of Meridian, Ala., is soon to hold a referendum vote on the matter of enforcing a compulsory roofing ordinance. The ordinance would force all parties building or rebuilding roofs to make them of non-combustible material, and the use of shingle roofing is prohibited. The city council has undertaken to put the law into effect, but as there is a clause in the commission form of government act that requires, on petition of a certain per cent, that the ordinance must be submitted to popular vote, a petition signed by 800 has been presented, and it is certain that an election will be held on the question.

The Olsen Concrete Mixer Co., recently launched at Elkhorn, Wis., with a capital stock of $20,000, has completed its organization by the election of officers and directors, as follows: President, A. G. Olsen; vice-president, J. F. Voss; secretary, John I. Haugan; treasurer, L. W. Swan; directors—A. G. Olsen, John I. Haugan, J. F. Voss, Jay W. Page and Charles C. Hotchkiss. Steps will be taken at once toward erecting a new plant, which will be equipped with the latest type of machinery for turning out concrete mixers. Mr. Olsen has been making these mixers on a small scale for some time, but now the operations of the company will be extended.

The brick-making firm of Jacob Daniel & Brother has changed its firm name to Jacob Daniel Brick Co. Offices are still at 291 Clippert avenue, Detroit, Mich.

The T. M. Goodloe Co., of Detroit, Mich., has established a branch office at Toledo, Ohio, and is preparing to cover that territory with its lines of "fire prevention" materials.

Quarrymen of Kentucky are looking with much interest toward the first of the year, at which time the workmen's compensation act will go into effect. The state officials are busy arranging the preliminaries, and large numbers of manufacturers in practically all lines of business are arranging to insure under the new act, which was passed at the 1914 session of the Kentucky legislature.

Scheduled Meetings and Shows.

Oct. 3 (Beginning)—Western Paving Brick Manufacturers' Association, Branson, Mo.

Nov. 9-14.—American Highway Association. Fourth American Road Congress, Atlanta, Ga.

Nov. 17.—Mar-Del-Col Building Material Dealers' Association meeting at Emerson Hotel, Baltimore.

Dec. 14-17.—American Road Builders' Association. Annual convention, Chicago.

Feb. 8, 9, 1915.—National Builders' Supply Association. Annual convention, Hotel Sherman, Chicago.

Feb. 10-12, 1915.—Illinois Lumber and Builders' Supply Dealers' Association. Annual convention, Hotel Sherman, Chicago.

Feb. 10-17, 1915.—Eighth Annual Chicago Cement Show. Coliseum, Chicago.

Earl S. Burns, general sales manager of the Interlocking Cement Stove Silo Co., of Des Moines, Iowa, has closed a deal in Crookston, Minn., by which E. Strandell is to handle the construction of silos and water tanks of cement in that territory and the materials to be manufactured there.

Mackinac Island had special attractions for Charles H. Bryan, of the Mercier-Bryan-Larkins Brick Co., of Detroit, Mich., during August. Together with his brother-in-law, Andrew Lonyo, and the two families, Mr. Bryan took the boat trip to the popular islands. He is now planning an Eastern auto trip.

L. W. Hewes, celebrated crusher expert of the Power & Mining Machinery Co., was in Columbus last week, taking in the great road pageant that was pulled off by the associated road interests of the state of Ohio, under the leadership of James R. Marker, state highway commissioner. It goes without saying that "Lew" Hewes was in the center of the big road builders, telling a good story which circles around business experiences, for "Lew" is one of the boys who is always at work.

Buildings in sight for Regina, Alberta, Can., during the present year now aggregate about $5,000,000. This includes many important buildings, business blocks, apartments, high class residences, some already under construction.

Charles E. Collier, 716 Madison avenue, Grand Rapids, Mich., has recently patented a process of making brick from concrete at what is claimed to be a remarkably low cost. The system is known as the Ak-O-Me System, which produces an enameled face brick in 12 colors, suitable for bath rooms, mantel places and ornamental work, at, it is said, a slight cost above the ordinary brick. The brick are 8x4x2⅝ inches and it is said to be possible to manufacture over 100,000 per day.

John L. Wheat, president of the Union Cement & Lime Co., Louisville, Ky., celebrated his eighty-sixth birthday last week. Mr. Wheat is the oldest member in the Louisville building supply trade, but still comes to the office at 9 o'clock in the morning of every working day and stays until 5:30 in the evening. He retains all of his faculties, although he has become slightly deaf, and handles the business of the company in the same manner in which he did 30 years ago.

B. Warwick, of the British Reinforced Concrete Engineering Co., Ltd., of Westminster, S. W., is touring this country, securing information relative to the use of forms for building concrete silos and towers. While a visitor in the office of ROCK PRODUCTS AND BUILDING MATERIALS, Mr. Warwick gave an interesting description of the methods of concrete construction in the British Isles, and expressed his appreciation of the vast amount of reinforced concrete work being constructed in America.

The Lime Service Bureau, formerly in the Southern building, Washington, D. C., has moved to room 823, Riggs building, Fifteenth and G streets, opposite the United States Treasury, to which new location all mail should be addressed. The bureau will hereafter be located in more adaptable quarters for its general work, and lime manufacturers, whether subscribers or not, representatives and employees of lime concerns, are cordially invited to visit the bureau when in Washington and to avail themselves of any service of a general character which the bureau may be able to render.

James H. Allen, of the Nebraska Material Co., Lincoln, Neb., was a Chicago visitor during the week ending Sept. 19. Part of "Jim's" time was spent in the office of the Lehigh Portland Cement Co., where the attractiveness of the employees appealed to him. "I have never seen such a large number of attractive and good looking business-like girls in any one office in all of my business career," said Mr. Allen. Upon investigation he found that Col. Viets is the man who hires them, and coming toward him with his hand extended, he said, "Colonel, I want to congratulate you upon your ability as a judge. You certainly have a splendid organization, of which your stenographers and clerks seem to be a vital factor." "Jim" was looking good and stated that business in Lincoln was very satisfactory. The Nebraska Material Co., have moved into their newly constructed office and warehouse building.

Publishers of Nation to Meet.

There will be a mingling of publishers, editors, advertising solicitors, advertisers and subscribers when the ninth annual convention of the Federation of Trade Press Associations is called to order on the morning of Sept. 24 at the Congress Hotel, Chicago. Invitations to attend have been issued to the members of the various trades who are interested in what their publications are doing.

The principal purpose of this convention, which will extend from Sept. 24 to 26, is to develop a higher standard of efficiency in the management of business and marketing methods. The vitally important phases of publishing and distribution will be discussed at this convention by leaders in the publishing, commercial and industrial world.

The Federation includes the various local trade press associations as well as individual members scattered in all parts of the country.

Philadelphia Dealers Discuss Expansion.

Building supply men were well represented at one of the most momentous meetings ever called in Philadelphia to consider the weighty problem of trade expansion. The meeting was held recently under the auspices of the Commercial Museum, at which about three hundred representatives of every phase of Philadelphia's trade and industry were present. With South America as the basis for much discussion the meeting may be said to have taken the initiative in going after the trade abandoned by the warring powers. It was the consensus of opinion that the time is now ripe for dealers and manufacturers in building supplies in the United States to take advantage of the wonderful trade in the Latin America. Building material men are only too willing to take advantage and are now in a position to enter the field made vacant by the inability of Germany and the other powers to care for the markets.

Importance of Trade Journals.

The merchant or manufacturer, the industrial or professional, the manager or operator, who assumes to "get on" without the trade journals directly or collaterally bearing on his particular specialty, is seriously handicapped in the stress of competitive strife. Wilfully, though perhaps not wittingly, he deprives himself of sources of information and material for progress and profit, lack of which must inevitably leave him in the lurch. The managing head of every house, no matter how large the concern, should above all things see to it that each department head, and so many of the working force as by their intelligent interest show that they would profit by technical and professional information—that all these men are provided with the trade journals best fitted to promote the advancement of each in efficiency. This is at the expense of the firm, of course, since the firm, in turn, cannot fail largely to profit by such policy. And don't commit the folly of balking at the preponderance of advertising pages. The information these contain is never less and often more valuable than is found in the reading matter.—Boston Herald.

Completed Buildings Help to Sell Brick.

Purchasers of building materials are buying less of their supplies from views of photographs and more as a result of inspecting samples in the various building material display rooms and of taking trips to finished brick structures.

The average builder desires to see a completed job containing the materials praised by building material retailers. Especially is this true with brick. Heretofore, photographs have been taken of brick structures and sent by manufacturers to their representatives for the purpose of having them in turn show them to their prospective customers. Together with individual samples this method of convincing builders of the merits of the brick has sold many thousands to builders and contractors.

But times are changing. A builder is not so easily convinced as he was years ago and, when it comes to viewing a photograph, he is skeptical as to whether the photograph is a true likeness of the building in which the brick is used. It is now up to the brick salesmen to find some new method of interesting the prospective customer in the brick he desires to sell him.

The most effective way in which to show a certain brick is to take the prospect either to your brick display room or to a building in which the particular brick you are boosting has been used. In practically all of the larger cities splendid brick displays are maintained, but in the smaller centers these are not available. In both instances, but especially in the latter, is it advisable to make a determined effort to place the brick in question in a building in your community. The effort to place your brick in the first building to be erected will give you an added incentive to work. Then again, at the completion of the building you will have something to show other prospective customers.

The BUILDERS' POET

THE SONG OF THE REEL

While on a fishing trip with a number of "Lehigh" men and other friends in Northern Wisconsin during August, Harold M. Scott, Western sales manager of the Lehigh Portland Cement Co., broke "all records" by catching an 18-pound muskellunge.

S. P. Chittenden, Jr., Mr. Scott's assistant, becoming enthused while on the Northern lake, composed a poem which he wrote in real catchy style, thereby becoming a "builders' poet." His contribution, which has been dedicated to Deer Park Lodge, Manitowish, Wis., follows:

As we sit in the boat
With rod in hand,
While our guide pulls the oars
We leave the land
And we start out to fish
For Muskey's bright,
Then we know in our heart
We're in for a fight.
So we lower the spoon
And let 'er glide
O'er the rippling surface
Where Muskey's hide.
And our line as it goes
From off the reel
Sings a song that is sweet
As wedding peal.
'Tis a song that we loved
While but a child;
'Tis a song of the wind,
The woods, the wild.
For the song of the reel
Is a wondrous thing
And its lure is so strong
Makes the whole world ring;
But a sudden sharp pull
Against the line
Has shattered our dream,
For it's a sign
That a Musky has hit.
You hear the swish
And your guide calls aloud:
"Say he's some fish."
Then the reel stops its song
As you thumb the line,
And you know he is hooked,
And you're feeling fine.
But the Musky knows, too,
It's do or die
And with quick, sudden jerks
Makes the line fly.
Then the reel once again
Takes up its song;
You pull in the line and—
Wonder how long
It will be 'fore that fish
Is tired to death
And you haul him aboard
While holding your breath.
Now he darts for the boat
In one last rush!
And your guide takes a shot.
Then a sudden hush
Overtakes the whole place
As you look 'round,
For, you see, the Musky
Weighs thirty pounds.
Oh, the song of the reel
Is a wondrous thing,
For it clears out your brain,
Makes the whole world sing.

NEW MISSISSIPPI GRAVEL RATES EFFECTIVE.

The last of the injunction suits which had been filed in the United States court to restrain enforcement of a recent order of the Railroad Commission of Mississippi to put into effect a new and revised tariff rate on sand and gravel has been disposed of by being withdrawn and the proceedings nullified on complainant's own motion. The company which held out and was ready to carry the litigation to a finish was the New Orleans Great Northern Railroad Co., whose representatives put up a vigorous fight when the subject was under consideration. Several other roads joined in the fight and a week after the order was passed by the Railroad Commission several different injunction suits were filed.

Judge Niles, of Jackson, Miss., has issued a decree authorizing the withdrawal of the suit of the Great Northern, with costs to the complainant, and the new rates will be effective throughout the state without further opposition.

WILL OPEN YARD IN EL PASO.

El Paso, Texas, Sept. 19.—The Bascom-French Co. has purchased a tract of land near the Las Cruces depot and will erect large warehouses for the handling of carload lots of coal, lumber, cement and other building materials.

The RETAILER

Cleveland Exchange Enjoys Outing.

Two hundred building material dealers, contractors and supply salesmen attended the annual meeting and outing of the Cleveland Builders' Exchange at Dover, Inn., 14 miles west of Cleveland, on Wednesday, Sept. 16. The trip to the resort was made in automobiles direct from the headquarters of the Builders' Exchange in Cleveland. Leaving the "Sixth City" at 1:30 p. m., the party enjoyed themselves on the way to the Inn and when there fully appreciated the spacious yard, where contests of various sorts were conducted. The heavyweights indulged in a tug-of-war, as well as the fat men's race, which was very spectacular. One of the 12 men starting this race finished the 50 yards.

Two ball games were in progress most of the afternoon, indoor baseballs and bats being used. Entertainment was furnished the onlookers whenever Bill Fay, of the Cuyahoga Builders' Supply Co., and Jack Emery, of the Cleveland Material Co., ran around the bases. Both acquitted themselves admirably with the "big stick." Home runs were very frequent in these two games. Horseshoes were thrown by such dealers and contractors who enjoyed this game.

After whetting their appetites through the strenuous efforts of the different games, the picknickers adjourned to the cottage nearby and were served with a delicious chicken dinner. This is where Tom Johns, of the U. S. G., got in his entertaining stunt, as his vocal cords were in good working order. He sang all of the latest songs, including "Annie Laurie" and "Comin' Through the Rye." The Rock River band entertained the gathering with all the latest Grand Opera selections.

W. W. Rossiter and Harry Angel performed the honors for the Cleveland Builders' Supply Co. Their specialty consisted of seeing that their friends in the trade were enjoying every minute of the time.

About 7:30 p. m. a few of the assembled dealers and contractors started to go home, but a good portion of the party was still to be seen at Dover's Inn about midnight.

DEALERS AND CONTRACTORS LINED UP FOR THEIR ANNUAL GROUP PICTURE AT THE OUTING OF THE CLEVELAND BUILDERS' EXCHANGE AT DOVER'S INN.

Cost of Hauling is Big Factor.

The biggest factor in the retail building material dealers' business constitutes the cost of hauling. Practically all of the materials they sell are delivered by teams, which are either owned or hired by the retailers.

Most retailers realize the fact that the greater part of the time consumed by their employees is in the delivery of materials, and accordingly they have given serious consideration to the question and arrived as closely as possible at a definite conclusion of what their hauling costs are. There are some dealers, however, who have not had this part of their business called to their attention and for some reason have overlooked this important item. Such dealers are making it hard for legitimate retailers to conduct a profitable business, for the simple reason that they do not know what it costs them to deliver materials and as a result are prone to quote prices ridiculously low. Instead of figuring on the actual cost of purchasing, handling and delivering materials, they base their quotations on the purchase price only, for it is certain that the retailer who has not given serious consideration to his hauling cost, has likewise neglected to ascertain his costs of handling materials.

Associations of retail building material dealers are doing considerable work along the line of enlightening retailers who have not given this part of their business the consideration which it merits. They have a task upon their hands, but by working consistently and industriously with the old time "one-horse" concerns, as well as with the new recruits, they will in the course of time accomplish results. Until the building material dealer knows his actual costs he is in no position to figure on actual profits. Wherever a profitable business is desired, a thorough knowledge of the costs of doing business must be had.

Southwest to Build Warehouses.

Dallas, Texas, Sept. 19.—The largest cotton crops in the history of this part of the country are being harvested and because of the inability of the manufacturing plants of this country to care for the entire output, a great quantity of it will be stored in close proximity to the fields on which it has been raised. The present warehouse facilities are not sufficient for the immense crop and as a result there will be many hundreds of warehouses built in this part of the country. Most of these will be of fireproof construction because of the prevailing insurance rates.

The southwest is constructing a large number of school structures, most of which are of brick. Practically all of them should have been finished for the opening of the fall term, but the small sale of bonds has hampered building to some extent and prevented the various boards of education from carrying their plans into effect. However, work is being rushed on such schools as were not completed prior to Sept. 1 and they will be finished in the very near future.

Let the Dealer Beware.

The old slogan, "let the buyer beware," is gradually changing. In some rare instances dealers are taking advantage of the ignorance of their customers and substituting materials and making overcharges, but the rank and file of the industry are men of the broad-gauge type who realize that the twentieth century method of conducting a building material business is to treat every customer alike. These dealers realize that the one-price policy is the best—best for the trade they serve as well as for themselves.

The day has come when the retailer of building materials finds it to his interest to take good care of the trade that he has developed. The welfare of his customer is reflected in the welfare of the retailer. When one prospers, the other likewise is making money.

While dealers find it to their interests to protect their trade, they should always bear in mind that they are in business for a mercenary reason and should not jeopardize their own interests in order to give their customers what they call a "square deal." Every customer deserves a "square deal," but be sure that you do not lose money in presenting him with that "square deal."

The retailer of building materials has a great variety of customers to deal with, ranging from the shrewd contractor to the ignorant foreigner, whose frugality has enabled him to secure sufficient of this world's goods to construct a home of his own. Retailers located in the larger cities very seldom deal with anyone but contractors; it is the dealer in the smaller city or town who comes in actual contact with the small home owner. It is this class of dealer who makes it a point to take especial good care of the small customer, frequently to his own detriment. His only excuse for cutting prices and granting special concessions to this class of trade is that if he does not do it his competitor across the way will.

Retailers should enlighten their trade as to the quality of the materials they are about to purchase and in other ways work for their welfare. Valuable advice as to what materials to use as well as the manner in which to use them is appreciated by the customer who finds it economical to perform part of his own work fully as much as a cut in the price of the various materials he buys.

The altruistic spirit (if such it may be called) of the twentieth century dealer is liable to place him close to the brink of bankruptcy. To such dealer the revised version of the old slogan should be preached. It is, "let the dealer beware."

Concrete Roads as a Help to Dealers

By Lewis R. Ferguson, Assistant Secretary American Association of Portland Cement Manufacturers.

History shows that the civilization of a country can be accurately traced by the character of its roads. To-day the progressiveness of any community can be just as surely judged by the condition of its highways.

The Romans were great road builders. During their conquest of Carthage they made the discovery that the success of the Carthagian armies was largely due to the good roads over which they traveled. The Romans quickly adopted the idea and became the greatest road builders of history. By means of their wonderful system of roads leading out from Rome they were able to transport their armies and implements of war over great distances and with considerable rapidity. It was due to this fact that they were able to hold in subjection the outlying provinces which they had conquered.

These old Roman engineers, who erected for themselves lasting monuments, such as the Appian Way, were called upon to construct roads which would support heavy loads and they promptly determined that a firm and unyielding foundation must be provided if success were to be obtained. It is just as true to-day as it was in the time of the Romans that a successful road depends upon a strong and firm base. This is especially true when the road is used for the transportation of heavy material such as building supply dealers haul. The roads which you use must be of the strongest nature possible and must not disintegrate under the severest traffic. In order to accomplish this result a binding material must be used in the construction of a road which will remain permanent in any temperature and which will not be affected by climatic conditions; a binding material which will hold the stones so firmly in place that they cannot be dislodged by either light or heavy horse-drawn traffic, not by the fastest moving automobile, or the heavier motor truck.

Portland cement is the only binder known which will answer these requirements. It is the only binder which not only does not weaken, but actually grows stronger with age. The concrete road offers to those engaged in transporting heavy loads an ideal pavement; a pavement which will not become soft in summer, nor brittle in winter, a pavement which is not slippery in wet weather, nor dusty in dry; a pavement which is suitable for both horse-drawn and motor vehicles and which, owing to its slight crown and even surface, offers a maximum width of road available for traffic, as well as a minimum of tractive resistance.

Owing to this low tractive resistance, and the excellent foothold attainable, a horse can pull a much larger load over a concrete road than over any other type of country highway. It takes five times as much power to draw a load over a clay road as it does over one of concrete; three times as much over the best gravel road, and about twice as much over a good macadam road. This is of vital interest to haulers of heavy, comparatively low-priced materials such as building supplies, where the cost of transportation from the dealers' yard to the building site is a large proportion of the delivered price of the material.

It is obvious that a concrete road is ideal for motor driven traffic and we must build concrete roads suitable for this class of vehicles. The number of motor trucks used for hauling heavy loads is increasing at an enormous rate and the loads which these motor trucks carry are becoming greater and greater. Undoubtedly this great increase in the number of motor trucks is due to the fact that they can transport bulky material more economically than horse-drawn vehicles. Roads must be built strong enough to support these very heavy loads.

In the February number of Scribner's Magazine, the leading article is devoted to the subject "The Motor and the Highway" and it is interesting to note what Mr. Rollin W. Hutchinson, Jr. says in this article:

"In 1913 about 36,000 motor-trucks were made in this country, or 6,000 more than the entire history of the industry had up to then recorded. This history indicates that the number of trucks going into service may be doubled each year until highway commerce becomes completely motorized," and further, in referring to the question of highways, he says:

"No motor-truck—even if it were practicable to build it to carry a weight of twenty tons on each axle—could do the slightest damage to a highway of concrete. Such highways can be constructed at but little greater initial cost than the now common, superficial, highly-expensive-to-maintain macadam roads."

There has been a tendency on the part of some of our legislative bodies to limit either the horse power or the speed of motor-trucks, or the loads which they carry, in order to prevent the wear of the roads. This, I believe, to be an absolutely wrong method of attacking the problem.

When the freight which a railroad is called upon to transport becomes so great that its present equipment is inadequate, or when it decides that more modern and heavier equipment will effect an economy, it does not refuse to carry this freight or to secure more modern equipment—no, the railroad builds better road beds, lays heavier rails, strengthens its bridges, so that its highway will be sufficiently strong to permit of the use of a heavier equipment and the increased freight loads. The road problem should be solved in the same way. Rather than limit the loads on the roads to prevent them from wearing, these roads should be constructed so that they will not wear under the heaviest traffic.

Dealers in building supplies need good roads during the spring perhaps more than during any other season of the year. As soon as the winter is past, building operations start with a rush, and yet it is during these spring months when the dealer most needs them that the average road is almost impassable. Highways paved with concrete are not softened by the spring thaws, and it is just as easy to haul over them during March and April as it is during September and October. If during the spring weather your wagons could be loaded to their maximum capacity and started for their destination with an absolute assurance that they would deliver their loads and return in a minimum time, what an advantage it would be over the conditions that exist in many communities, where a half loaded wagon starts out with the chances very much in favor of it being stuck to its hub in the mud long before the load is delivered. How often have you had to send an extra team from the yard to help pull one of your wagons out of the mire? Prompt and rapid deliveries please customers and increase sales as well as reduce hauling charges.

There is no better advertisement for a community than a system of good roads. In fact, an easy means of transportation is an absolute essential to the development of any section. No matter how beautiful a locality is, it cannot be developed until there is easy access to it. Conversely good roads will attract people and develop a section more rapidly than anything else. This means that buildings will be erected, and there will be an increased demand for the materials of which they are constructed.

The advantages of good roads are recognized by almost everyone, and yet it is significant that there is a hesitancy on the part of many, and an absolute antagonism on the part of others, to an extension of existing systems. Why should such a feeling exist? It is due to the fact that maintenance charges in the past have been so large. In many instances the cost of maintenance has been more than double the interest on the bonds issued to build a road, and too often the road has been rebuilt several times before the original bonds mature. It is perfectly right to tax posterity for an improvement it will enjoy, but we have no right to saddle our children with a debt from which they will receive no benefit.

As long as our roads were subjected entirely to iron-bound traffic the macadam roads served very well indeed. This type of road depends for its integrity upon the binding power of the stone dust of which the surface is composed. The horses hoofs and the tires of the wheels produced just enough fine material to replace that which was blown away.

With the advent of the motor vehicle, however, entirely different conditions arose. With such vehicles the power is applied entirely to the rear wheels, and these rubber tired wheels in turn exert a tremendous shearing and tearing force on the surface of the road, displacing this surface and producing no fine material to replace it.

Many binding materials have been tried with which it was hoped to hold the stones in the road more firmly in position, but either due to lack of strength or due to the fact that they disintegrate under climatic conditions and become weak, little success was attained in reducing this maintenance cost until the advent of the concrete highway. Road engineers throughout the country are turning to the concrete road as a solution of this maintenance cost problem, and the very small amount of money needed to keep such a pavement in repair justifies them in so doing.

I think I am safe in saying that there is hardly a highway engineer in the United States who can read or see who doesn't know there is such a thing as a concrete road. Many of them are on the verge of building an experimental stretch and all that is needed to actually start them going is a good shove. We want you dealers to give that shove all along the line. The Association of Portland Cement Manufacturers will help you by sending literature on the subject to any one you suggest, and whenever possible we will even send one of our road engineers to show a contractor or road supervisor just how to proceed with the work to secure the best results. If you wish one of our engineers, give us as much notice in advance as possible, at least a week.

Concrete roads are becoming so numerous and demands upon us are so frequent that we are kept more than busy showing people how to build them.

The materials used in the construction of concrete roads are handled by building supply dealers. The sand, stone, and cement, and in many instances the asphalt or tar used to fill the joints, are in your yards. Every mile of concrete roadway built means about 2,000 tons of stone, 1,000 tons of sand, and 3,000 barrels of cement used in construction. A few miles of concrete road would increase considerably the business of many dealers.

Any proposition which will enable dealers to haul heavier loads for less money with greater rapidity; which will enable them to greatly increase the territory which they can supply economically; which will enable them to haul cheaply and easily at all seasons of the year; which will stimulate demand for their material for various purposes and which will at the same time consume a large amount of the material they wish to dispose of, will certainly be of help to the dealers. This is what the concrete road does.

Viewed from any angle the concrete road is of vital interest to those engaged in the supply of building materials and will be of immense help to them.

Are you a member of the Bourse Family?

Retailers and Manufacturers Tell of Conditions

Interesting Letters from Various Fields of Activity Describe Local and National Situations of Building Material Industry—Tight Money Blamed for Quiet Condition—Great Improvement Shown in September.

Reports from manufacturers and retailers of building materials indicate that while there has been a stagnation of business in certain sections of the country, the fall season will witness an improvement in business which should make the average for the building season of 1914 equal that of the previous year. Conditions for the past six months have been somewhat erratic, being practically at a standstill in some communities and showing a great improvement over previous years in others.

Whatever has been the experience of the industry so far this year, practically the entire trade predicts a splendid fall season and these predictions are not based entirely upon the optimistic nature of the men offering them, but are the results of close scrutiny of the various fields in which these men operate.

There is plenty of demand for materials and the greatest hindrance has been the attitude of the building and loan associations, as well as some banking institutions, in holding up money that should have been used in the erection of dwellings and business institutions. In some communities where the money has been available the interest rate has been excessive and has worked as a barrier against the improvement of conditions.

In connection with the opinions of men in the trade, the report of R. G. Dun & Co. is interesting and much credence may be placed on this company's remarks, which are as follows:

"The improving tendencies gather more force, with business on the whole reflecting seasonable recovery in various branches outside the principal industries. Official bank exhibits this week disclose a strong position, and, while no change appears in discount conditions, credits are well sustained and trading mortality is less disturbing.

"Successful crop marketings at profitable returns, the increased agricultural wealth and purchasing power, and betterment in export trade and exchange are factors directly stimulating the outlook for producers and distributers. The activities in the central West derive further strength in the demands from abroad, and this gratifying development is an inducement to wider enterprise."

Correspondence Indicates Conditions.

Correspondence from a number of our readers indicates the local as well as national conditions. The following reports, just received, are printed for the benefit of the trade:

W. W. Nichol, of the Peoria Fuel Co., Peoria, Ill.: "The sales of building materials in Peoria and vicinity for the year 1914 will equal those of last year. Collections have been very poor but are getting in better condition than earlier in the year. In Peoria the trade has been better than in the smaller towns adjacent to this city, due a great deal to a building campaign started last fall by the Association of Commerce which apointed a home building committee to boost house building in Peoria during 1914. To aid in the cause various building material dealers subscribed the sum of $5,000, to be given away in prizes for houses erected this year.

"There is no doubt that this has stimulated house building in the city and many houses have been built because of the campaign of publicity conducted by the committee. We do not think that there will be any rush this fall for materials such as we have had in other years, but believe that we will have a good, steady business in this line from now until cold weather, and that the year as a whole will average up favorably with last year.

"On account of the money conditions we think that a great many dealers have been very conservative in buying as well as in selling to the trade and have cut out many orders similar to those which they have taken in other years. Because of this attitude they will not have the losses of former years. No doubt our fall business has been effected by the war scare and poor crops in many localities. If it were not for these causes we would have had a better fall trade than we had last year; but the business for the whole year under conditions has been better than we could have expected."

John J. Voelkel, president of the J. J. Clarke Co., Ltd., New Orleans, La.: "We have no complaint at all to make regarding trade conditions in New Orleans. Our business in the past few months has been as large, if not larger, than any previous year during the same period. We look for a good business trade the balance of the year."

Miss Astrid S. Rosing, Chicago's woman building material dealer: "Retail business in building materials of all kinds with me has been good all summer; I have no reason to complain; my teams have been kept busy every day. In regard to future business, I am very optimistic and am looking forward to a very heavy fall business in all lines.

Kosmos Portland Cement Co., Inc., Louisville, Ky.: "Business on large and small contracts has kept up very nicely; also shipments to our agents at different points. Speaking up to this time, we have had a very nice business this year. We cannot tell what may come, but we are not going to cross the bridge until we get to it. We have no complaints so far."

W. E. Coeban, general sales manager of the Wolverine Portland Cement Co., Coldwater, Mich.: "We have no complaints whatever to offer. The season has been exceedingly good compared with other lines of business and we have nothing to kick about. The present outlook for fall business seems very good, but of course it will be governed by weather conditions."

George C. Videtto, secretary of the American Pulverizer Co., East St. Louis, Ill.: "You may record our assurances that improved conditions in our line of machinery have arrived and that orders for our 'American' ring pulverizer are coming in about as fast as we can build them. We must confess that business was exceptionally slow during the four months after March 1. Our correspondence indicates that business in the East is improving faster than in the West and that business in Canada is very slow. We believe that a fair volume of business will continue during the fall and that sufficient data is at hand to warrant the belief that the market will be in prime condition the coming spring."

G. E. Agan, of Gerwig & Agan, Herkimer, N. Y.: "Up to the present time our business has shown an increase of about 10 per cent over the business done during the same period last year. We have been continually adding new specialties to the large line of material already handled and believe we are now in position to take care of the requirements in our territory as well as any dealer. From the fact that we have found ready market for these specialties as well as for the regular line, it would indicate that the building operations in our territory have not been curtailed. As a matter of fact, we believe there has been more activity during the present year than in any years for a period of five years back, and on the whole the outlook for fall business is very encouraging."

Prescott and McTige, gravel contractors of Memphis, Tenn.: "We are doing a lot of work, especially in Madison county, Tenn."

A. C. Armstrong, secretary of the Thompson-Armstrong Co., Cincinnati, Ohio.: "While we do not find business conditions quite as good as last fall, we have no complaints to offer and in view of all the war talk and business stagnation we feel very optimistic, both as to the present and future. We are sure that when the final recapitulation for 1914 is made up the dealers will note that there has been no decided decline when compared to 1913."

Howard B. Arnold, president of the Dayton Builders' Supply Co., Dayton, Ohio.: "Conditions at the present time in Dayton are not at all favorable. Very little or no new work is being started and the prospects for fall and winter are very slim indeed. Our great trouble seems to be that the parties interested are not able to borrow the money demanded and if this condition could be relieved we believe that not less than one-half to a million dollars of work would be started in Dayton yet this fall. We could very easily place a large sum of money upon first mortgages that would net the lender 6½ to 7 per cent."

Ed. J. Holway, secretary of the Youngstown Ice Co., Youngstown, Ohio: "We have enjoyed a very successful season in the builders' supply line. Our sales are nearly what they were last year and when you consider that the industrial plants have made no improvements and have been working only about 40 per cent of the time this is remarkable. The iron and steel industry is our barometer, and their business is away off, owing to the tariff and other legislation.

"The European war is also being felt by us in this way. The municipalities cannot dispose of their 5 per cent bonds, hence all work is being held up and cannot go ahead until the money market rights itself. If this happens before spring, we are looking forward to the biggest year we have ever had in the builders' supply line."

Carl C. Walters, sales manager of the Hocking Valley Products Co., Columbus, Ohio: "There is no denying the fact that building conditions have suffered from the effects of the European war. There has been a great moral effort attempted to make light of the effect in this country, and while of course this is a commendable spirit, the fact remains that building and loan associations, banks and trust companies have been, since the breaking out of the war, practically refusing all loans on building operations and especially on new buildings about to be started. This action is not a surprising one. In fact, every business man must have anticipated it the same as we anticipate that the stringency is but temporary, and for this reason we naturally expect an easy return of financial confidence, and we believe that it is only a matter of time until building conditions are back to a normal state. Indeed, we feel that, weather permitting, the fall months will prove to be record breakers.

"So far as our company is concerned, while our record of increased business was not so great in the month of August as it was the previous months, we show a considerable increase over the corresponding

month of last year. Totaling figures for the first half of this month show that we are going to easily exceed the business of September, 1913, so that while we are not going the pace of the first seven months of the year we are ahead of the normal record."

R. W. Marshall, president of the Wheeling Wall Plaster Co., Wheeling, W. Va.: "Our sales have increased every month this year, being about 30 per cent ahead of last year and 20 per cent ahead of the best year we have ever had since starting business 15 years ago. The outlook for the balance of this year is splendid in the building line throughout this section and in fact all over West Virginia."

E. H. Norblom, of the Landers-Morrison-Christenson Co., Minneapolis, Minn.: "The building material business is gradually falling off, due to the fact that interest rates are high, and it is difficult to secure loans. If the present situation continues, or becomes worse, we have reason to believe that there will be little new work; on the other hand, if the money market becomes normal, we look for an exceptionally active season for 1915."

J. B. Freemann, manager of the Northwestern Clay Mfg. Co., New Windsor, Ill.: "There are indications that orders may be a little slow for a time with collections possibly the same, but we feel there is enough business booked and in sight to keep all the factories in our territory busy the balance of the year. Some have been worried more or less by a scarcity of water, but the late rains should have remedied that, and I think everybody feels very well satisfied with conditions here."

Harry A. Rogers, secretary of A. B. Keeport & Co., Indianapolis, Ind.: "At the present time the market is dull, largely due to the conservative policy adopted by the trust companies and building and loan associations. We feel, however, that a little later on the situation will clear up somewhat and we anticipate a very nice late fall business. The wholesale market, more especially on Portland cement, remains firm and we cannot see any reason why local dealers should sacrifice their profits in order to make a sale."

J. W. Bowen, secretary-treasurer of the H. M. Reynolds Asphalt Shingle Co., Grand Rapids, Mich.: "Our business is good and we are running full time, to our maximum capacity. From all we can learn, we are satisfied that this condition is going to improve and continue to improve well into the winter. We will say, however, that a large percentage of the business we are securing is a result of unusual effort on our part. All things considered, we are satisfied with our trade and the conditions. We have no fault to find with collections. They might be better, but they are not bad."

Edward K. Cormack, president of the National Builders' Supply Association and vice-president of the Wisconsin Lime & Cement Co., Chicago, Ill.: "The present condition of business can be described in no other way than as bad. This condition can be attributed solely to the tightening up in the money market. It must be borne in mind that 99 per cent of those who build, whether building a cottage or a skyscraper, borrow all or part of the money to do it with. With interest rates at 7 per cent yearly, building becomes an unprofitable business, and those who did not, prior to Aug. 1, have arrangements made to finance their buildings, have abandoned the idea until the financial horizon looks a little better. As to what the immediate future will bring forth, one can secure as many different opinions regarding this as there are men on the street, and one opinion being worth as much as another.

"I feel and anticipate that the present depression, as far as the building supply man is concerned, cannot possibly last with the knowledge we have and the status of present conditions any longer than next spring, at which time it is believed there will be a healthy return to normal conditions. In the meantime it behooves the supply man to follow Cromwell's advice to his soldiers to 'trust in God, but keep your powder dry.'"

Charles Warner, of the Charles Warner Co., Wilmington, Del.: "We are still enjoying a good run of business taking it as a whole, but there are indications that the European war will have some temporary effect on new construction work that has been in contemplation, or even in some cases of work that had partially started. We do not think this 'hesitation' will last more than a few months and need not be the cause of serious alarm to manufacturers or dealers in builders' supplies, unless they be led into unnecessary reduction in prices in certain districts."

A. W. Eisenmayer, vice-president of the Granite City Lime & Cement Co., Granite City, Ill.: "Although our business of last year was considerably in excess of that of the year before, our business of this year up to June 1 was in excess of our business of 1913 and considerably in excess of our business of 1912, covering the same period. Still July and August were not good months at all, but were superior in point of sales to the corresponding month of 1912. At the present time, in the month of September, our sales are again in excess of our sales at this time in September, 1913, and greatly in excess of our sales for September at this time in 1912. There is every indication that the fall business will be good and that business throughout the coming year will be very good, indeed."

A. B. Meyer, president of A. B. Meyer & Co., Indianapolis, Ind.: "Our market has been somewhat erratic during this season, but taking it as a whole, it is our opinion that we have had as much business this year as last. The getting of business has been more difficult and uncertain, but taking into consideration the various different articles handled by our firm, we have been kept going fairly steady from May last up to date, and the building prospects are looking pretty good for this fall. Our municipal contracts of streets and sewers are progressing in pretty good shape and the total quantities of Portland cement used will foot up to 250,000 barrels easily. We have but little complaint to make of the volume of business, but it has been more difficult to transact the business than formerly."

Charles Weiler, Western Lime & Cement Co., Milwaukee, Wis.: "What do I think of trade conditions for the present, and the fall outlook?

"I try not to think of them at all!

"Mrs. Partington says it is always better to be an oculist than a pessimist.

"No tremendous convulsion like the present sickening war in Europe can occur without leaving scars all over the world. Capital always takes fright, and scurries to cover. The absence of bank accommodations puts an embargo on trade and industry. No money to loan means no new buildings, always the first expenditure to be cut off when money is scarce.

"Combined with the loss of revenue from decreased trade, the business world, already outrageously overtaxed, is facing another 'War Tax'! It never seems to occur to any of our public servants that the best way to make both ends meet is to economize, and God knows there is room for vast economies in our wasteful and profligate governmental extravagancies.

"When you and I find our income cut off, and our household increasing its already extravagant bills, do we read the riot act to the family and tell them to let up a little? Well I guess yes!

"Then why should we be bashful about telling our public servants that if they don't stop frying more and more fat out of us, and choke off some of their joy-rides, we will hire some new and steady men—P. D. Q.?

"But these are temporary troubles. The future has no terrors. There is certain to be a great expansion in our population next year, for many millions of Europeans will be only too glad to escape the tragedy of life in their country, and live in 'The Land of Peace.' The demand for all the necessaries of life, including homes, is sure to enormously expand, and even a blind man, to say nothing of an 'oculist,' can see that there is a golden prospect in store for us all in the near future.

"Meantime we must all sit tight and wait."

New Incorporations and Ventures.

The Tropical Oil Co., of Cleveland, Ohio, has changed its name to the Tropical Paint and Oil Co.

The Schaab Roofing and Supply Co. has moved its office and factory from Monroeville to Fort Wayne, Ind.

H. H. Snowden is organizing a builders' supply business at Cuero, Texas. He expects to capitalize the new concern with $20,000 to $30,000.

The D. H. Owen Co. has been formed at Youngstown, Ohio, by D. H. Owen, E. J. Holway, A. H. Buehrle, Charles P. Fitch and Mabel R. Owen.

The Standard Wall Plaster Co. has been incorporated at Louisville, Ky., with a capital of $10,000, to deal in building material. R. R. Williams is the principal incorporator.

The Hoefer Coal Co., of Dixon, Ill., has been incorporated with a capital of $10,000 to deal in building materials, coal and coke. Irving B. Hoefer is one of the principal incorporators.

Henry, Carl and John Bornhauser filed articles of incorporation for the Henry Bornhauser Co., of Louisville, Ky., which is capitalized for $1,500. The stock has all been subscribed and the company will sell building materials.

A charter has been granted to Phillips-Tomie Co., a new firm entering the roofing business in Nashville, Tenn. Verner Tomie, who for years has been connected with Phillips & Co., in a similar field of work, is one of the principal stockholders.

The Albert Backus Co., of Irvington, N. J., has been incorporated with a capital of $125,000 to deal in building materials. Albert Backus and Emil Martin, of Irvington, and William C. Taylor, of South Orange, N. J., are the incorporators.

With a capital of $250,000 the Superior Paving Block Co., of Bolivar, N. Y., has been organized to manufacture and deal in building materials, specializing on brick and artificial stone. The incorporators are W. L. Nichols, W. J. Henderson and A. J. Matson.

For the purpose of engaging in the business of contracting, quarrying and the sale of building materials, the Sherman Contracting Co., Inc., has been incorporated at Oneonta, N. Y., with a capital of $25,000. The incorporators are Arthur Seybolt, Alva Seybolt and Frank C. Sherman.

The Youngstown Coal and Supply Co. has been organized at Youngstown, Ohio, for the purpose of engaging in the builders' supply business. The firm is capitalized at $3,000 and its incorporators are J. W. Wagstaff, George D. Gessman, O. R. Jones, H. C. Campbell and E. B. Williams.

The Hegan Co., capitalized at $9,000, is a new builders' supply firm at Louisville, Ky. They will also conduct a contracting business. The incorporators are J. E. Hegan, Samuel L. Levy and C. H. Johnson, all of Louisville. The company has already begun business, handling mantels, fixtures and cement, but specializing in tile and tile construction. Offices of the company are at 520 West Chestnut street.

NEWS of the TRADE

General Conditions.

Building construction throughout the United States showed a decrease for August of 26 per cent over the corresponding period a year ago. Permits were taken out in 88 principal cities in August, according to official reports to Construction News for the construction of 17,470 buildings involving a total estimated cost of $52,704,444, as against 18,980 buildings involving an estimated cost of $66,404,984 for the same month a year ago, a decrease of 1,519 buildings and $13,700,540 or 26 per cent. These figures are in wide contrast with the totals for July of this year, which showed an increase of 15 per cent over the same month a year ago. The effect of the war in Europe seems to have been immediate. The figures in detail are as follows:

Cities.	1914 No. of Bldgs.	1914 Estimated Cost.	1913 No. of Bldgs.	1913 Estimated Cost.	% Gain.	% Loss.
Chicago	754	$ 5,759,450	971	$ 5,754,000	..	..
Boston and vicinity	472	5,147,000	340	5,913,000	..	13
New York (Boros Man. and Bronx)	302	4,881,293	360	4,971,043	..	2
Newark	189	2,196,233	210	1,814,438	76	..
Philadelphia	1,291	2,642,810	1,137	3,616,860	..	27
Detroit	595	2,353,445	845	2,608,825	..	9
Cleveland	1,039	2,318,470	1,013	4,041,970	..	42
Seattle	797	1,565,525	977	582,425	168	..
San Francisco	470	1,415,371	513	1,613,881	..	12
Los Angeles	756	1,387,498	1,393	3,501,593	..	63
Pittsburgh	354	1,137,069	286	1,059,663	6	..
Baltimore	250	1,012,846	245	6,450,380	..	84
Minneapolis	488	942,975	565	1,211,230	..	22
Buffalo	341	950,000	383	682,000	39	..
Rochester	240	868,457	304	791,843	2	..
St. Louis	739	797,165	759	1,082,947	..	26
Worcester	133	679,692	121	341,992	181	..
Columbus	329	647,325	239	495,140	31	..
St. Paul	208	646,921	179	775,134	..	16
Milwaukee	305	631,284	486	1 163,013	..	46
Akron	174	607,315	250	354,125	70	..
Kansas City, Mo.	254	587,395	215	857,475	..	28
Omaha	122	581,065	97	536,515	3	..
New Haven	109	500,567	67	258,693	9	..
Washington, D. C.	372	491,576	369	627,472	..	21
Toledo	249	490,047	199	357,435	37	..
Springfield, Mass.	133	409,260	95	374,495	78	..
Salt Lake City	122	480,045	58	129,975	369	..
Albany	259	479,685	367	577,180	..	17
Indianapolis	497	472,436	488	700,768	..	32
Oakland	357	411,889	337	1,080,996	..	62
Portland, Ore.	510	409,390	526	1,168,845	..	65
Atlanta	245	372,033	297	348,256	7	..
Erie	127	366,290	77	152,987	140	..
Tampa	174	358,865	155	246,768	45	..
Birmingham	315	314,549	301	332,385	..	5
Fort Worth	49	301,100	45	95,915	213	..
Peoria	63	285,081	42	161,510	50	..
Cedar Rapids	73	282,000	47	250,000	13	..
Youngstown	103	261,565	109	227,725	14	..
Elizabeth	65	242,291	32	91,190	166	..
Duluth	160	238,023	151	156,960	52	..
New Orleans	..	236,910	....	295,260	..	19
Sioux City	51	222,495	66	120,550	85	..
Paterson	68	221,956	47	49,650	347	..
San Diego	198	208,408	255	715,576	..	71
Hartford	81	185,990	94	554,425	..	66
Scranton	51	185,388	47	63,623	191	..
Richmond	95	183,410	99	304,343	..	39
Memphis	173	175,660	246	311,116	..	43
New Bedford	78	175,550	90	104,185	68	..
Berkeley	90	161,750	89	123,750	31	..
Jacksonville	60	161,705	53	95,625	69	..
Fort Wayne	57	153,800	56	274,175	..	12
Denver	396	150,620	294	233,810	..	35
Bridgeport	65	147,062	121	409,060	..	64
Tacoma	150	139,460	188	152,737	..	8
Trenton	72	137,681	62	211,425	..	34
Lincoln	59	136,865	33	75,115	82	..
Altoona	82	130,274	91	119 995	..	8
Holyoke	12	130,175	15	232,725	..	44
Chattanooga	202	128,810	199	125,435	2	..
South Bend	30	119,316	34	113 473	5	..
Davenport	39	119,235	27	91,305	30	..
Dayton	74	111,643	71	144,460	..	22
Des Moines	48	111,150	40	88,775	25	..
Savannah	60	106,590	62	173,530	..	6
Schenectady	56	103,058	90	254,030	..	59
St. Joseph, Mo.	66	93,623	58	43,970	113	..
Nashville	55	91,441	34	171,224	..	9
Saginaw	41	90,785	28	46,215	96	..
Allentown	31	79,211	26	118 000	..	33
Lawrence	17	76,040	6	43 202	75	..
Springfield, Ill.	33	72,900	32	70 075	3	..
East St. Louis	55	67,977	76	176 178	..	61
Sacramento	111	62,358	113	170,405	..	61
Bayonne	24	61,022	27	63,765	..	4
Troy	57	51,275	45	141,780	..	63
Passaic	37	36,665	22	129 944	..	72
Spokane	55	31,455	78	119,039	..	70
Reading	23	29,400	52	107 600	..	72
Wilkes-Barre	77	28,731	53	137,644	..	79
San Jose	37	27,661	40	29,160	..	31
Topeka	39	20,399	42	49,325	..	58
Colorado Springs	23	16,885	20	16,505	2	..
Hoboken	13	12,845	81	125,345	..	89
Stockton	12	7 950	31	63,975	..	88
Pueblo	10	5,230	17	11,570	..	54
Totals	17,470	$52,704,444	18,989	$66,404,984	..	26

All of the large cities show a decrease with the exception of Chicago, where there was a slight increase in amount involved in comparison with the same month a year ago, permits having been taken out for 754 buildings involving an estimated cost of $5,759,450 as against 971 buildings at an estimated cost of $5,754,000 for the same month a year ago. The decrease in New York is not as great as heretofore and this would indicate some improvement, the loss having been 2 per cent, while in Boston it was 13 per cent and in Philadelphia 27 per cent. There were gains in 37 cities and losses in 50. Pittsburgh had an increase of 6 per cent, Buffalo 39, Rochester 2, Worcester, Mass., 181, Columbus, Ohio, 31, Akron 70, New Haven 9, Toledo 37, Springfield, Mass., 78, Salt Lake City 269, Atlanta 7, Erie 140, Tampa 45, Ft. Worth 213, Peoria 50, Cedar Rapids 13, Youngstown 14, Elizabeth 166, Duluth 52, Sioux City 5, Patterson 347, Newark 76, Scranton 191, New Bedford 68, Berkeley 31, Jacksonville 69, Lincoln 82, Chattanooga 2, South Bend 5, Davenport 30, Des Moines 25, St. Joseph 118, Saginaw 96, Lawrence, Mass., 75, Springfield, Ill., 3, Colorado Springs 2 and Seattle 168.

In addition to the cities enumerated in which there were losses, there was a decrease in Detroit of 9 per cent, Cleveland 42, San Francisco 12, Los Angeles 63, Baltimore 84, Minneapolis 22, St. Louis 26, St. Paul 16, Milwaukee 46, Kansas City 38, Omaha 3, Washington, D. C., 21, Albany 17, Indianapolis 32, Oakland 62, Portland, Ore., 65, Birmingham 5, New Orleans 19, San Diego 71, Hartford 66, Richmond 39, Memphis 45, Ft. Wayne 12, Denver 35, Bridgeport 64, Tacoma 8, Trenton 34, Altoona 8, Holyoke 44, Dayton 22, Savannah 6, Schenectady 59, Nashville 9, Allentown 32, East St. Louis 61, Sacramento 61, Troy, N. Y., 63, Passaic 72, Spokane 70, Reading 72, Wilkes Barre 79, San Jose 31, Topeka 58, Hoboken 89, Stockton 88 and Pueblo 54.

The heaviest losses are in the cities which have been going ahead most rapidly, the demand for places in which to live and in which to do business in the growing towns throughout the country having been phenomenal during the past few years and as they are the first to feel the effects of the war, they are of the enterprising kind which will quickly recover, and go on to increased prosperity in the near future.

Good Fall Expected in Milwaukee.

Milwaukee, Wis., Sept. 19.—Contractors and building supply men believe that they will meet with a good fall business, due to the fact that many large building projects started earlier in the season have been held over and will be rushed to completion this fall. The amount of new building launched in Milwaukee during the past few weeks has hardly been up to expectations, but a decided increase is now noticeable. During the first week of September there were 56 permits issued for buildings to cost $231,257, as compared with 83 permits and an investment of $149,555 during the corresponding period a year ago.

A permit has just been granted to Gimbel Brothers for the erection of a new four-story addition, costing $160,000, to the Gimbel store in Milwaukee. The foundation, which has already been started, will permit the erection of additional stories when necessary. Work will start soon on razing the southwest corner of the Plankinton block on Grand avenue, between Second street and West Water, and plans are being completed for the erection of a store and office building on the site.

Conditions in Chicago.

There is quite a revival in building construction in Chicago, now that the first effects of the paralysis, due to the declaration of war, have passed away.

For a few days it seemed that no more building permits would ever be taken out again; the effect was not only immediate, it was instantaneous. Then came the announcement that no new building loans could or would be made, and that seemed to settle the question; building must cease at once, and it did for a few days, but it was not long until a change came over conditions and builders were busy again.

Once more the demand for permits was just as strong as if nothing had happened. It is interesting in this connection to note that the cities in which there is the most activity in things, not only building but in everything that goes to make a city, were the first to feel the effects of the declaration of war, and naturally they were the first to recover and begin to build again upon a scale fairly comparable to the condition prevailing before the war set in.

As a demonstration of the way in which building operations are being started permits for the week ending Sept. 19 totaled $1,073,600, as against $844,900 for the same week last year. There was a little falling off in the number of permits issued, however, as there were but 68 taken out during the week, while 85 were issued during the same week of 1913.

Considerable big building is about to take place in the outlying districts. One such district will shortly see the first skyscraper to be built outside of the loop district. A ten-story structure is planned for Wilson avenue, east of Sheridan road. Heretofore this stretch of street has been given over exclusively to apartments and residences. The proposed building will be built next spring and will contain a theater, shops and a hotel. The site fronts 126 feet on Wilson avenue with 96 feet of it being 194 feet deep and 30 feet with a depth of 125 feet. The entire tract has 31,700 square feet of ground space.

A nine-story apartment building, which will represent an expenditure of more than $500,000, is planned for the southeast corner of Sheridan road and Bryn Mawr avenue. It will be one of the largest apartment buildings in Chicago.

The way is now clear for Chicago's new Union passenger station, which will be built by the issuance of bonds against the station property and against the property of the Pennsylvania, Burlington, Chicago, Milwaukee and St. Paul roads. It is estimated that the cost of the station will be between $40,000,000 and $50,000,000.

The convention of Illinois state architects will be held at the Hotel La Salle on Oct. 7 and 8. Architects from every city and county in the state will be in attendance. One of the features of special attention is the fact that the only pre-requisite for admission as a delegate to the convention is the holding of a license to practice the profession in the state. The future of the architects' license law and the proposed state building code are perhaps the two great subjects which will receive the attention of the convention. The need of several amendments to the present license law is believed by many to be urgently necessary and a report of the commission appointed by former Governor Deneen, during his administration to codify and report a comprehensive state building code will make its report to the legislature at the coming session.

Building material dealers of Chicago differ greatly

The market place of the building material industry Employment department, machinery wanted and for sale, etc. If your wants are not answered in this page, write a letter to this office.

THE FRANCIS PUBLISHING CO.
537 S. Dearborn Street Chicago, Illinois

:: THE :: BOURSE

Advertisements will be inserted in this section at the following rates:

For one insertion.....25 cents a line
For two insertions.....45 cents a line
For three insertions.....60 cents a line

Eight words of ordinary length make one line. Heading counts as two lines.
No display except the headings can be admitted.
Remittances should accompany the order. No extra charges for copy of paper containing the advertisement.

EMPLOYEES WANTED

WANTED

Bookkeeper capable of looking after one or two assistants. Preference given one having knowledge of building material and coal. Location Indianapolis. Will invite answers from parties having experience in position of auditor or credit man, or supervisor of bookkeepers. Old firm, handling both lines. Address BOX 1010, care ROCK PRODUCTS AND BUILDING MATERIALS.

EMPLOYMENT WANTED

WANTED—Position as General Manager or Salesman by man experienced in the rock crusher business and in road contracting; also, in the sale and delivery of cement and lime. Twenty years' experience, highest reference for ability and character. Only engagement with a high-grade concern will be considered. Address Box 1009, care ROCK PRODUCTS AND BUILDING MATERIALS.

WANTED—Position as quarry superintendent. Twenty years' experience erecting and operating crushing plants. Reference. Address BOX 1011, care ROCK PRODUCTS AND BUILDING MATERIALS.

WANTED—Position as superintendent with a good stone company. Fifteen years' experience with large crushers, locomotives, steam shovels and blasting. Make a specialty of opening up and placing quarries on paying basis. Best of references furnished. Address BOX 1013, care ROCK PRODUCTS AND BUILDING MATERIALS.

WANTED—Position by sand-lime brick man of many years' experience. Thorough knowledge of manufacturing. Best of references. Address BOX 1012, care ROCK PRODUCTS AND BUILDING MATERIALS.

PLANTS FOR SALE

FOR SALE—Profitable lime manufacturing plant with inexhaustible quarry. Capacity 200 barrels per day. Have contract for 300,000 barrels. Have 6c rate to New York, 7c to Boston. Owners have other business. Address Box 372, care ROCK PRODUCTS AND BUILDING MATERIALS.

1¼ YD. TRACTION SHOVEL
Vulcan "Little Giant" with three sets of engines.
Dipper has manganese teeth.
Excellent Condition
WICKES BROTHERS, JERSEY CITY, N.J.

BUSINESS OPPORTUNITIES

AGRICULTURAL LIME AND CRUSHED STONE QUARRY FOR SALE.

A well-developed lime and crushed stone quarry in Eastern Tennessee, situated on the Southern Railway, of approximately 43 acres, is now offered for sale at a very attractive price on reasonable terms. A big market exists in the territory for agricultural lime. Modern road building is now going rapidly forward, which will make a good outlet for that product. Full information and details obtained by referring to file 47833 and writing M. V. Richards, Land and Industrial Agent, Room 371 Southern Railway, Washington, D. C.

BUILDERS' SUPPLY AND GRAIN BUSINESS FOR SALE.

Attractive proposition in active city of New York State will be sacrificed to hustler. Present owner retiring from business. Address Box 1008, care ROCK PRODUCTS AND BUILDING MATERIALS.

WANTED—Chicago Agency for building materials. Capable, aggressive young man wants to represent manufacturer who has a good line. Address "Chicago," care ROCK PRODUCTS AND BUILDING MATERIALS.

RAILS
all sizes—small or large lots. New and relaying. We are familiar with quarry requirements and know just what you need. Frogs, switches, splices and all track accessories. Immediate shipment from stock.
L. B. FOSTER CO.
PARK BUILDING PITTSBURGH, PA.

G. P. GRIMSLEY, Ph. D.
MINING AND CONSULTING GEOLOGIST
Formerly Ass't State Geologist W. Va.; Formerly Geologist on Ohio, Michigan and Kansas Geological Surveys; Ex-Manager National Limestone Company. Consulting Geologist National Limestone Company
Examination, Reports, Consultation on development Limestone, Clay, Gypsum and Coal.
Room 1105 Wyandotte Bld'g. : Columbus, Ohio

HIGH GRADE **CLAY** AND SILICA **SAND**
CRUDE-DRIED-GROUND CRUDE-DRIED-SCREENED
GEO. C. CROSSLEY
CROSSLEY STATION - TOMS RIVER, N. J.

CARS & LOCOMOTIVES FOR SALE

CARS.

156—5 yard 36-inch gauge all steel Peteler 2-way dump cars, built 1910 and '11. Thoroughly overhauled. Practically good as new. The best dump cars we have ever seen. We are putting these cars on the market at bargain prices. Write us for further information.

Eight 36-inch gauge double-truck flat cars.

LOCOMOTIVES.

Eleven—12x16 Porter four-wheel saddle-tank 36-inch gauge locomotives, built 1910 and '11, and used until the end of the season 1911; practically new.

One—11x16 Pittsburg four-wheel saddle tank, 36-inch gauge.

Thirty-five 9x14 Porter four-wheel saddle tanks, 36-inch gauge. Most of these have steel cabs and were built since 1902.

STEAM SHOVELS.

Three—Marion Model 60 steam shovels, in excellent condition; ready for immediate shipment.

One—Bucyrus Model 65, with Model 70 front and applied. Thoroughly overhauled.

Two—Marion Model G shovels, in first-class condition.

Also big lot steam shovel repair parts, and other contractors' equipment.

MINNESOTA EQUIPMENT CO., Hibbing, Minn.

FOR SALE
Portable Sand and Gravel Washing and Screening Plant. Brand New
WILLIS SHAW MCHY. CO., New York Life Bldg., Chicago

IMPORTANT! We ask the cooperation of our advertising patrons in the matter of getting changes of copy for their ad into this office at an early date.

Advertising copy for issue of the 7th should be mailed us not later than the 25th of the month preceding.
Changes of copy for the 22nd issue should be mailed not later than the 10th of each month.
In complying with this request you will permit of ample time in which to have your ad set and receive proof for O. K., or corrections.

The Francis Publishing Company - 537 So. Dearborn St., Chicago, Ill.

as to the present condition of business. Some complain that business is poor, while others are very jubilant over the fact that there are plenty of orders obtainable.

F. J. Silha, manager of the Wilcox Co., states that business is good. There is a good deal of road work now under construction and the Wilcox Co. is supplying a good portion of the concrete materials. Coal orders are also good.

J. F. Wood, president of the Northwest Material Co., states that three weeks ago this company had more business than they could handle but there was a sudden drop about a week or ten days ago and conditions have not as yet improved.

The Irving Park Builders' Material Lumber Co. is spreading its influence in the northwestern part of the city and have found it necessary to increase their capital stock from $10,000 to $30,000.

Louisville Business Continues Good.

Louisville, Ky., Sept. 19.—Local supply men report that business continues to hold up nicely, in spite of the fact that only small jobs are coming out. The volume of small orders, however, amounts to a nice figure, and the trade is more evenly distributed than when only a few big jobs come out.

State Fair Week in Louisville was a big event for the building supply men, several of whom had exhibits at the fair. Buyers became interested in the displays and in some cases enough orders were secured on the grounds to pay the expenses for the entire week, which left the advertising proposition free of cost. A number of out of town people, after seeing the exhibits, called at the offices to place their orders. The fair was one of the best ever held in Louisville. The weather was warm and bright and it is estimated that 100,000 people from all over Kentucky were present.

Suit for a receiver for the Culley Cement Block Co. was recently filed in the Circuit Court by John S. Culley, a large stockholder. The Louisville Trust Co. has been appointed receiver.

Sales with the Union Cement & Lime Co. have been very satisfactory, according to Leo M. Parsons, sales manager. Brick business has been slightly quiet during the past few weeks, but specialties are moving well.

The R. B. Tyler Co. recently took on the brick line of the Klein Brick & Tile Co., of Louisville, Ohio, and is having a large wall case built on the north side of its store room, which will house 12 lines of brick, including the new line. E. J. Schario, a salesman for the Klein Brick & Tile Co., was in Louisville this week superintending the laying of the brick in the display cases and concluding arrangements with the Tyler concern. The company was recently awarded the contract for 1,500 barrels of Kosmos Portland cement for use in the new Duncan street school building. A number of smaller contracts will be supplied on some of the other school buildings. Sales of both lime and cement have been good this season.

One of the most pretentious celebrations of Labor Day was the annual picnic and outing of the Louisville Builders' Exchange, held at Hikes Point.

Builders and material men were gathered together in scores to disport themselves without restraint and fraternize as only builders can, under the tutelage of Fred Hardwick, who enjoys the honor of being president emeritus of the exchange. The day was ideal, just enough rain fell to whet the determination to have a good time, and the sun shone throughout the afternoon to brighten an already brilliant prospect.

The day had many features, principal among which might be mentioned a dinner, consisting of fried chicken. The baseball game, a feature of the day's entertainments, resulted in several scores being made by both sides. As every baseball game is supposed to have a feature, this one was no exception to the rule, and Bill Bailey, of Bailey & Koerner, engineers and contractors, carried off the honors in this respect. It was the most spectacular play of the game and consisted of a home run on a muffed three bagger. The game went eight innings and was called on account of dinner. There was something doing every minute of the time, and many prizes were carried off by proud performers in the sack races, nail driving and guessing contests. Other games, such as euchre, lotto and dominoes, were played in the pavillion and under the shade of the trees, and croquet and the old reliable game of horseshoes were not overlooked.

The attendance this season was far in excess of that of any previous outing, which speaks well for the efforts of the various committees.

Eastern Pennsylvania Prospects Good.

Philadelphia, Pa., Sept. 19.—Conditions in this city and vicinity in building and supply work have changed but little during the past two weeks, and most of the local concerns are kept fairly busy. Many large building projects are under way and local dealers are confident of an active demand for the various materials during the early fall season. Although the European war is affecting a great many lines of business, no effect has been noticed in the building trades so far, nor do the supply men feel that any effect will be noted. Collections have been rather discouraging and with the present stringency in the money market may be worse and this is the only obstacle that supply men will have to contend with.

Jobbers in building materials throughout eastern Pennsylvania say that they are meeting with a good business from retailers in various parts of the state. Indications are that there will be considerable building carried on in the country districts and in the smaller cities and towns this fall.

Fred G. Daboll, sales manager for the Charles Warner Co., declares that material being sold at the present time is for small buildings and repair work. "Some big jobs are being completed and for these we are filling orders on contracts previously received," said Mr. Daboll. "Business is fair just now, but we are optimistic and look for a good fall season."

E. E. Nickson, manager of the National Fireproofing Co., in discussing business conditions here said: "At present we find business just about normal, but if our prospects for the future materialize 1914 will be a record breaking year."

A WEST TENNESSEE CENTER.

Dyersburg, Tenn., Sept. 19.—This little city on the Forked Deer river is having a healthy growth and is the fourth city of the Western division, or perhaps the third. A new courthouse and government building were recently completed here. Considerable city paving work is in progress. Quite a long concrete and steel bridge is being rebuilt over the Forked Deer river. The Illinois Central railroad is doing much of its trestle work at this time in concrete with steel reinforcements. The Wilson Concrete Co., headed by H. C. Wilson, does the building material and local work here. Improvements to the extent of $30,000 are in progress on the Virginia hotel.

Obituary.

William H. Colescott, for many years one of the leading building material dealers of Camden, N. J., died recently at the summer home of his son, William H. Colescott, Jr., in Pitman, N. J. Mr. Colescott was 91 years of age and one of the oldest citizens of Camden.

Labor Trouble Affecting Kansas City.

Kansas City, Mo., Sept. 19.—Building operations in Kansas City are being hampered by controversies among unions. Some large contracts have been held up for several weeks. Among these is the Muehlbach hotel. As an example of the manner in which this condition is affecting dealers, the Hydraulic-Press Brick Co. has a contract to supply the face brick for the new hotel; the brick are ready but the labor is not on hand so delivery is not made.

As this item is written, however, it seems at least probable that the labor difficulties are to be settled through the intervention and help of parties interested in the erection of one or two of the largest structures planned near the new Union station.

But there has been a most unusual amount of small work, that has very substantially saved the situation for the smaller contractors who take the sub-contracts on big work, and that has also very substantially assisted the builders' supply men. There are always hundreds of little jobs that a man could get if he wanted them; jobs using a few sacks of cement or plaster, taking a day or so for a small bunch of men; jobs even more trivial—a half day's work. These are the jobs that people generally find hard to get done, because every contractor and workman seems to be so busy with bigger things. But right now there is a veritable furore of getting the little work done in Kansas City.

The record-breaking rainstorm of Sept. 7 and several storms nearly as severe since caused great damage in a low-lying section to small houses, necessitating largely merely plaster repairs, and such work as could be done with small quantities of sand and cement. There was a heavy demand for lime for disinfecting the flooded area.

NASHVILLE FALL TRADE GOOD.

Nashville, Tenn., Sept. 19.—Building material men here this fall say that Nashville trade is holding its own. Prices are sustained and demand is fair.

R. D. Herbert, of T. L. Herbert & Sons, has returned to the city after spending two or three days in Memphis. F. H. Wheeler, of the same company, has also been visiting points in Tennessee. T. L. Herbert & Sons report an unusually heavy business in sand, gravel, cement, plaster and other materials.

VULCANITE CO. BUYS KANSAS CITY PLANT.

The Kansas City branch of the American Roofing Co., which has been purchased by the Patent Vulcanite Roofing Co. of Chicago, will hereafter be known by the latter name. The plant is located at Twelfth and Crystal streets, Kansas City, Mo., and is reported to be selling a large amount of prepared roofing materials.

ADDS WAREHOUSE TO YARD.

Waco, Texas, Sept. 19.—The business of Barnes & McCollough has increased to such an extent that they have found it necessary to construct a warehouse in connection with their building material yard. They will use the new warehouse for storing cement, lime, plaster and kindred materials.

DANVILLE, KY., FIRM KEPT BUSY.

The Dillehay Brick Co., of Danville, Ky., has been very busy this season handling a number of good jobs in and around Danville. In addition to manufacturing brick, the company carries a full line of builders' supplies and coal.

Are you a member of the Bourse Family?

Legal Department

CONDUCTED BY ELTON J. BUCKLEY

Collecting Omitted Items After "Receipt In Full"

Requests for information in this department should tersely set out in full all the facts bearing on the case and all questions should be carefully framed to avoid misconstruction. Write on one side of the sheet only. Letters should be received at the office of ROCK PRODUCTS AND BUILDING MATERIALS not later than the first and fifteenth of each month to insure an answer in the issue following. The signature and address of the writer must accompany all inquiries and will be published unless there is a request not to do so. ALL INQUIRIES RECEIVED WILL BE ANSWERED WITHOUT CHARGE.

Here is a letter the answer to which should be of general interest:—

Oswego, N. Y., Aug. 25, 1914.

Elton J. Buckley, Esq.,
Philadelphia, Pa.

Dear Sir:—Please give us some advice as to whether we are prevented from collecting a sum due us by a customer by the fact of our having given by mistake a receipt in full to date. This customer buys large quantities of building hardware and general supplies from us and often takes six months to a year to pay us. There will be a great many items and keeping his account is a big job. He requested us last month to render him an account up to date, and we did so, as we thought, but accidentally omitted one bill amounting to $225. He had paid the bill we sent him and gotten our receipt in full to date before we discovered the omission, now he refuses to pay the omitted item, and says it is our loss. We have consulted two lawyers here and one says we cannot collect and the other says we can, so we are at a loss to know where we stand. Would appreciate your opinion, as we read your articles on legal topics regularly and have been greatly helped by them. Should appreciate a personal answer, but if that is against your rule and you answer through the paper, do not use our name.

Yours respectfully,

* * * *

There is no doubt that you can collect the balance due, if there is no more in the case than you have set forth. Where an account against a debtor is clear and definite, and there is no dispute about it, the creditor, if he has mistakenly rendered an incorrect statement and given an incorrect receipt, can always reopen the matter and collect a balance if he can show it is really owing. The only defense which the debtor can offer, to relieve himself, is "I have paid the very item that you are now seeking to recover." The mere fact that he holds a receipt "in full to date" will not help him in the least unless he can show by positive proof that his receipt included that particular item.

There was a case precisely in point with the one this correspondent cites, decided in Pennsylvania recently, and while it was decided under Pennsylvania law, the decision would unquestionably have been the same in any other state. That was also a hardware case, and the facts and the court's opinion on it are thus set forth by the court itself:

This is a rule for judgment for want of a sufficient defense. In its statement the plaintiff alleges that it sold and delivered certain articles of merchandise to the defendant in July, 1911; that in August, 1911, it sent a statement to the defendant of her indebtedness to it, in which statement the clerk who made it out omitted the items for goods sold and delivered in July, which are the subject of this action. In her affidavit of defense the defendant admits that she bought certain articles of merchandise from the plaintiff, but that she paid for them in full on Aug. 31, 1911, by a check, which stated on its face that it was "full up to date."

When the plaintiff accepted and cashed the check given to it by the defendant, with the words "in full up to date" upon it, it became a receipt in her hands for all her indebtedness to the plaintiff to that date. The plaintiff was in exactly the same position as though he had given her such a receipt. It was bound by the receipt, unless it could show that something had been omitted from the account for which it was given in settlement, either by fraud, accident or mistake either of law or fact; Russell vs. Church, 65 Pa. 9. In its statement the plaintiff alleges that the merchandise purchased during the month of July was omitted by the clerk. This was a mistake on his part. The question raised, then, was whether a mistake had been made, and, if denied, it is a question of fact for a jury: Krauser vs. McCurdy, 174 Pa. 174. In order to prevent judgment the affidavit of defense must deny that a mistake was made, or allege payment of the items in question. This it does not do, but simply depends upon the receipt in full as payment of all claims of the plaintiff against her to its date, viz., Aug. 31, 1911. It thus evades answering the allegation in the plaintiff's statement upon which it depends to recover. Judgment will therefore be entered for the plaintiff for the amount claimed.

The law is very different where there is a dispute over the account, or a difference of opinion as to how much is owed. In such a case, if the parties discuss the account and finally reach an agreement as to how much should be paid to settle it, and the debtor pays that much and gets a receipt "in full of all claims," the creditor can practically never reopen the matter and claim any more, unless he can show either that fraud was practiced upon him, or that other circumstances exist which would make it highly unjust to deprive him of the right to claim an item which was accidentally omitted. In such a case the law would hold the creditor negligent for not being posted about his account and would decline to reopen and put the debtor back where he started from. Re-opening here would cost the debtor time and trouble which the creditor would have no right to ask him to undergo. If the creditor could show, however, that the debtor knew all the time that the creditor was omitting something from his basis of settlement, the case would then be reopened because that would be fraud. The difference between such a case and the two hardware cases discussed above, is that in the latter there was no dispute over the account, and no need or effort to compromise. The debtor had lost nothing by the mistake, and as he had gotten the goods, it would be extremely unfair to allow him to escape paying for them merely because the creditor had forgotten to charge him for them.

BRINGING COUNTRY NEARER CITY.

That motor trucks are bringing the back country many hours nearer to the city, is a fact regarding which evidence multiplies. California apparently sets the pace in this respect, for out there it is a poor rancher or mine owner who doesn't operate one or more motor trucks.

H. J. Blackmore, sales manager of the Davies-Leavitt Co., of San Diego, comments interestingly on this situation.

"There was a time," says Mr. Blackmore, "when a rancher would not buy a truck without having a demonstration that frequently covered several days. But that time is past, and now it is only a question of which truck is best suited to the work.

"In the work of a KisselKar truck recently sold to C. W. Potter, of Julian, the advantages of a truck over horses was exemplified. Potter uses this truck in the most severe service, that of hauling supplies to the mines around Julian and Banner. To many of these mines, the roads are nothing more than mere trails, yet the truck chugs merrily along with heavy loads. Mr. Potter would not go back to horse-drawn vehicles under any consideration. He says the truck does many times the work of two teams, does it cheaper, and in much less time."

The city of Butte, Mont., has purchased three KisselKar trucks for its department of Public Works, after exhaustive tests and a lively competition between the various manufacturers bidding for the order. On one of the trucks, a sprinkling and flushing outfit will be mounted, while the other two will be used to collect refuse. The sale was made through the Treasure State Auto Co. of Butte, and the decision reached was largely due to the excellent work of two KisselKar dump trucks owned by the county of Missoula, Montana.

The Kissel Motor Car Co. shipped six KisselKar trucks to Auckland, New Zealand, last week. Two were of 1,500 pounds capacity, the others one ton models.

A Table to Figure Brickwork.

A writer in the National Builder gives the accompanying table, which will prove valuable to any building material dealer or manufacturer who has brickwork to do around his plant, or yard, or who

Per Sq Ft of Wall Surface	Thickness of Walls									
	4½ in. or ½ Brick	9 in. or Brick	13 in. or 1½ Brick	18 in. or 2 Brick	22½ in. or 2½ Brick	26 in. or 3 Brick	30½ in. or 3½ Brick	35 in. or 4 Brick	39½ in. or 4½ Brick	44 in. or 5 Brick
6	3	7	10	14	17½	21	24½	28	31½	35
10	5	14	21	28	35	42	49	56	63	70
16	10½	21	31½	42	52½	63	73½	84	94½	105
20	14	28	42	56	70	84	98	112	126	140
26	17½	35	52½	70	87½	105	122½	140	157½	175
30	21	42	63	84	105	126	147	168	189	210
36	24½	49	73½	98	122½	147	171½	196	220½	245
40	28	56	84	112	140	168	196	224	252	280
46	31½	63	94½	126	157½	189	220½	252	283½	315
50	35	70	105	140	175	210	245	280	315	350
56	38½	77	115½	154	192½	231	269½	308	346½	385
60	42	84	126	168	210	252	294	336	378	420
66	45½	91	136½	182	227½	273	318½	364	409½	455
70	49	98	147	196	245	294	343	392	441	490
76	52½	105	157½	210	262½	315	367½	420	472½	525
80	56	112	168	224	280	336	392	448	504	560
86	59½	119	178½	238	297½	357	416½	476	535½	595
90	63	126	189	252	315	378	441	504	567	630
96	66½	133	199½	266	332½	399	465½	532	598½	665
100	70	140	210	280	350	420	490	560	630	700
150	105	210	315	420	525	630	735	840	945	1050
200	140	280	420	560	700	840	980	1120	1260	1400
300	210	420	630	840	1050	1260	1470	1680	1890	2100
400	280	560	840	1120	1400	1680	1960	2240	2520	2800
500	350	700	1050	1400	1750	2100	2450	2800	3150	3500
600	420	840	1260	1680	2100	2520	2940	3360	3780	4200
700	490	980	1470	1960	2450	2940	3430	3920	4410	4900
800	560	1120	1680	2240	2800	3360	3920	4480	5040	5600
900	630	1260	1890	2520	3150	3780	4410	5040	5670	6300
1000	700	1400	2100	2800	3500	4200	4900	5600	6300	7000
2000	1400	2800	4200	5600	7000	8400	9800	11200	12600	14000
3000	2100	4200	6300	8400	10500	12600	14700	16800	18900	21000
4000	2800	5600	8400	11200	14000	16800	19600	22400	25200	28000
5000	3500	7000	10500	14000	17500	21000	24500	28000	31500	35000
6000	4200	8400	12600	16800	21000	25200	29400	33600	37800	42000
7000	4900	9800	14700	19600	24500	29400	34300	39200	44100	49000
8000	5600	11200	16800	22400	28000	33600	39200	44800	50400	56000
9000	6300	12600	18900	25200	31500	37800	44100	50400	56700	63000
10000	7000	14000	21000	28000	35000	42000	49000	56000	63000	70000

HANDY BRICKWORK TABLE.

wishes to calculate the number of brick required for any sort of work that may be under way in his neighborhood. The calculations are based on average size building brick, due allowance being made for some variation in brick size. In addition to the table, the contractor who gave the figures made the following calculations, which have to do with the superficial measurement: To each superficial foot of 4-inch wall allow 7 brick; to 9-inch wall, 14 brick; to 13-inch wall, 21 brick; to 18-inch wall, 28 brick; to 22-inch wall, 35 brick.

Memphis Dealers Plan New Exhibits.

Building material retailers of Memphis, Tenn., are completing plans for their various exhibits which will be on display at the Tri-State Fair, to be held at Memphis from September 26 to October 3. Much encouragement is also given by these dealers to the cotton storage movement—the "buy-a-bale" plan.

Reports are to the effect that the dealers are fairly active.

TRAFFIC NEWS

Rate Case to Be Reopened.

The Interstate Commerce Commission decided on Sept. 19 to reopen the eastern rate advance case and will begin hearings at Washington, D. C., Oct. 19. A formal order to that effect was prepared.

This decision of the commission comes upon the recent application of the railroads, which was made after President Wilson had received a committee of railway presidents at the White House. How far that conference may have gone toward preparing the way for a reopening of the case is not known. It was said at the time that the railway men asked the president to appeal to the country to treat the railroads in a spirit of coöperation and the president responded by sending a sympathetic letter to Chairman Frank Trumbull of the Chesapeake & Ohio.

The railroads also asked the commission to modify its recent decision, which granted increases west of Pittsburgh and denied all increases between the great lakes and the Atlantic seaboard. Under the law the commission cannot modify that order without hearings. The decision to reopen the case brings the whole question up again for review, in which the railroads will press for the 5 per cent increases throughout the territory east of the Mississippi and north of the Ohio and Potomac rivers.

The railroads asked for a reopening not upon the showing they made at the hearings prior to the decision, but upon conditions which the managers say have become apparent since. The showing of roads for June, which was not available when the case was before the commission last time, and the exigencies which have been thrust upon them by the European war, with the attendant difficulties of getting new capital and the decrease in export traffic, were cited as the principal reasons the case should be reopened.

Shippers' organizations which fought the increases previously, have given notice that they will oppose further advances on the rehearing. They will be represented by counsel, and will have an opportunity to oppose new increases, as they did before.

The increases the railroads seek are identical with those which were denied. Although described as 5 per cent advances, the commission's recent decision declared some of them went as high as 35 per cent. The principal heavy commodities west of Pittsburgh, Buffalo and Charleston, such as building materials, coal, etc., which constitute more than half of the total traffic of the railroads, would be affected. All class and commodity rates east, for which the commission denied increases entirely, will be affected by the new case.

Western railroads already are preparing applications for increases, so that when the commission begins the rehearing it will have before it substantially applications for increased freight rates from the Atlantic to the Pacific.

CARS BECOMING SCARCE.

The movement of grain is beginning on an elaborate scale and cars are becoming scarce. In order to protect their interests building material dealers should get orders in to the manufacturers as early as possible. Instructions accompanying orders should give the manufacturers as much time as possible, because of the approaching car shortage. Manufacturers are as anxious as retailers to have shipments of materials leave manufacturing plants as soon after the order is received as possible, but the supply of railroad equipment at this time of the year often interferes and quite frequently the manufacturers are blamed for delayed shipment when the car shortage is the sole cause.

PROTEST AGAINST INCREASED RATES.

Fred E. Paulson and L. J. Dauback, representing the Lehigh Portland Cement Co., appeared before Examiners Mackley and Bowers, of the Interstate Commerce Commission, at the Federal building, Chicago, Sept. 15, with a protest against the proposed increase in cement rates from Mason City, Ia., to stations on the Midland Continental railroad.

The Chicago, Milwaukee & St. Paul railway had advanced the rate on cement from Mason City to stations on the Midland Continental road from 21 to 23 cents per 100 pounds, to take effect June 1, 1914. The rate was suspended by the Interstate Commerce Commission by Investigation and Suspension Docket No. 463 until Sept. 29, 1914. Hearing was set for Sept. 15, so as to give the C. M & St. P. R. R. an opportunity to present arguments justifying the advances proposed. The Lehigh Portland Cement Co. argued that inasmuch as cement is a low-class commodity with practically no liability to the carrier, a rate of 21 cents cannot be considered unduly low for the distance of 486 miles to Jamestown, N. D., which yields the carriers an earning of 8.6 mills per ton per mile, with increase on the per ton mile earnings to intermediate points.

SEEKING CEMENT RATES.

Representatives of the Nebraska Portland Cement Co., of Superior, Neb., appeared before the state railway commission on Sept. 7 and consented to a continuance of the cement freight rate case until Sept. 21. A large number of railroad men and agents of cement companies in other states and Nebraska dealers in building material were present. The Superior company and the C., B. & Q. R. R. and agents on other roads will try to agree on new rates. They will prepare a schedule and submit it to interested companies prior to Sept. 21. It is believed an agreement can be effected without a hearing of the case. The Superior company filed a complaint alleging it was ready to ship cement from its new mills but that it is unable to compete with companies in other states which take advantage of interstate rates and place their product on markets in Nebraska cheaper than the Superior mill can sell for, freight rates being considered.

Among the companies that desire to be heard, if the case comes to trial before the commission, are two Denver cement companies, Sunderland Bros. Co. of Omaha, C. W. Hall of Omaha, John Von Stein Co. of Beatrice, Nebraska Material Co. of Lincoln, Nebraska Manufacturers' Association of Lincoln and the Kansas City Cement Co.

COMMISSION TO HEAR CEMENT RATE ARGUMENTS.

Probably one of the most important, if not the most interesting, cases to be heard by the Interstate Commerce Commission has been set for oral argument before the commission at Washington on Oct. 7. The case is covered by Investigation and Suspension Docket No. 408 and refers to advances in the cement rates between points in Illinois and points in Minnesota and other states, amounting to approximately 2 cents per 100 pounds.

LIME RULING ON L. C. L. SHIPMENTS ONLY.

The ruling of the Joint Rate and Inspection Bureau prohibiting the shipment of lime and plaster in paper sacks has been rescinded and a new order issued which has reference only to the shipment of lime in less than carloads.

William E. Carson, president of the National Lime Manufacturers' Association, has sought all available information from the various railroads in regard to the ruling as printed in the last issues of ROCK PRODUCTS AND BUILDING MATERIALS and explains why the ruling was made in the following words:

"The change in classification was brought about on recommendation of Mr. Markey, district manager of Southern Weighing and Inspection Bureau, whose office is at Richmond, Va., to meet a condition brought about by less than carload shipments made by a firm in Richmond, whose claims for breakage and damage to paper bags were more than the freight amounted to, so he asked that paper bags for lime should not be accepted for less than carload shipments. The wording of the classification is ambiguous and might be applied to carload shipments."

CARRIERS WITHDRAW SUPPLEMENT.

The Central Freight Association lines, through their agent, Eugene Morris, filed supplement 18 to their tariff 85A, I. C. C. 131, adding the St. L. & S. F. railroad as party thereto. This had the effect of eliminating the uses of the lowest combination rates on traffic handled in connection with that line, forcing the building material people and others to pay the combination of local rates on the Ohio river.

This supplement was protested by the Lehigh Portland Cement Co. and the case was called for hearing before Examiners Mackley & Bowers at Chicago on Sept. 15, under I. & S. Docket No. 487, at which hearing the C. F. A. lines, after short arguments, agreed to withdraw the supplement making the increases proposed.

START PROCEEDINGS AGAINST INJUNCTION.

Equity proceedings have been begun by the Philadelphia & Reading railroad to restrain by injunction the effectiveness of an order by the Interstate Commerce Commission directing the railroad to stop charging the Allentown Portland Cement Co. $1.35 per ton on cement from Evansville, Pa., to Jersey City, N. J. In 1912 the cement company attacked the Reading and other roads for the maintenance of this rate and a year ago last June the commission held that the carriers were subjecting Jersey City to undue prejudice and disadvantage. Later a rehearing was granted, but without inducing the commission to alter its decision. The order required that the tariffs naming a lower rate be filed Sept. 1.

"SAND IS SAND," SAYS COMMISSION.

Sand is sand, whether it be used for glass, molding purposes or for building. This was the conclusion reached by the public ultilities commission of Ohio on Sept. 12, when it ordered the Erie Railway Co. to cease charging freight reights of 60 cents per ton for hauling glass and molding sand, and 30 cents per ton for carrying building sand and gravel. The same rate for both must be charged, the commission says, unless particular equipment is demanded by the shipper. In this case an increase of 15 per cent is allowed over the 30-cent rate.

The complaint of excessive charge was made by the Summit Silica Sand Co. on shipments from Barberton to Akron.

CEMENT COMPANY FILES COMPLAINT.

The Cape Girardeau Portland Cement Co., of Cape Girardeau, Mo., has filed formal complaints against the various carriers, claiming that the rates to points in southern Illinois, Tennessee, Mississippi and Indiana are unjust and discriminatory. No date has yet been set for the hearing but it is predicted when the case is heard the proceedings will be most interesting.

Are you a member of the Bourse Family?

N. B. S. A.

Cost Accounting Systems Most Interesting.

When a man in the building supply business has been shown one of the application blanks of the National Builders' Supply Association, and after he has read "Our Program" as outlined therein, he is asked what particular feature of the work which the association is endeavoring to perform appeals to him the most, and the reply invariably is: "The effort to secure a simple, yet accurate, cost system for adoption by the building supply trade."

Now, why is it that the dealer is so interested in this particular object? Simply because he well knows that the prices at which his goods are being sold today are not based on any scientific system that shows him just what it is costing him to do business, but rather he is guided entirely by what the fellow across the street is selling for, and if his competitor can afford to handle his goods without a margin of profit, he, too, must do the same.

This is really a regrettable state of affairs, but nevertheless is true, and the National Builders' Supply Association has realized for a long time that one of the principle reasons why the building supply business is in such an unhealthy state is because of the lack of understanding on the part of the supply man regarding the cost of his doing business, and it further believes that everybody will gladly welcome anything which will serve to correct conditions as they now exist.

Several years ago ROCK PRODUCTS AND BUILDING MATERIALS conducted an investigation on the subject of "Cost Systems." It is interesting to note some of the replies which were received at that time regarding same.

One firm said: "We have not found a satisfactory way of keeping the cost, and are one of those who would like to have suggestions, but unfortunately have none to offer."

Another retailer said: "I am afraid our concern is too old-fashioned to carry the cost system in an up-to-date manner. We would be very glad to get the result of your canvass on this subject, as we have no doubt that we are much behind the times in this matter."

Quoting from another reply we find the following: "No matter how good a system might be installed in a company, it would fall flat if not executed properly. It seems rather a broad statement to make, yet there are a number of people who just as soon as this would show up their losses would probably throw it out, condemning it."

At first glance this last reply seems to contain considerable humor in its lines, but there is no doubt whatever that if a standardized system of cost accounting was adopted and put into general effect throughout the building supply business, a good many concerns would find that they had been handling their goods at an actual loss, but instead of desiring to throw the system out the door, it would be the means of automatically increasing the prices on the commodities which were shown to have been handled without any margin of profit.

The building supply business is not the only line in which there has been a lack of understanding as to the cost of doing business, but it has been slower to correct the cause thereof, while other trades have gone ahead and installed standardized systems of accounting. For instance, one of the firms which is now conducting an investigation for the National Builders' Supply Association has already succeeded in drawing up a system of cost accounting for the shoe trade, as well as the hardware trade, and it has met with the universal approval of both these industries and is used practically throughout the entire country.

Retail industries which have been following a system of accounts are now endeavoring to standardize their systems in accord with the latest and most approved style; if such a standardization of the retail business could be brought about, which is very probable, it is at once evident that comparisons could be made not only between concerns in the same business, but between the various industries themselves.

The National Builders' Supply Association feels that this is one of the greatest works that it could perform for the benefit of the dealers, and it is looking forward with great hope for their co-operation. The only conditions laid down for the guidance of the cost accounting firms which are now engaged in this work are that the system must be simple, accurate and elastic, so as to be readily applicable to the small dealer as well as the largest.

Those interested in the association's work have cause to feel encouraged, as they know that their efforts to get the building supply man to give this subject more consideration have borne fruit, and when it is further considered that the association proposes to employ and keep permanently on its staff an auditor who will assist the members to install the system adopted, the dealer who heretofore has been averse to affiliating with associations because, as he will tell you, they have failed to do anything for him personally, will begin to realize the constructive work they are undertaking and lend his assistance to the movement.

N. B. S. A. Notes.

Applications for membership have been received from the following firms since last issue:

Keim Brick & Tile Co., Louisville, O.
Mason's Specialty Co., Chicago, Ill.
Templeton Lime Co., Chicago, Ill.

The association confidently expects to be able to show in each succeeding issue a very large increase in the number of new members and looks forward to its membership to make good use of the application blanks which they all have. About 30 of the Chicago dealers are now members; and it is intended to begin at once a personal solicitation among those still remaining without, and headquarters guarantees 75 per cent results; in other words, at least three-fourths of the dealers' names will appear on this page in the near future.

J. H. Allen, of the Nebraska Material Co., Lincoln, Neb., and one of the directors of the N. B. S. A., was a caller at headquarters during the week. Mr. Allen was chock full of enthusiasm and after his talk with President Cormack he was even more enthusiastic.

The grand juries are composed of men who are a success in business and other pursuits, and such being the case it is no wonder that President Cormack should now be adorning the September grand jury in Chicago. Many notable cases come up before these bodies and they must be handled by men who know.

Don't forget the sixteenth annual convention of the N. B. S. A., to be held in Chicago, Feb. 8 and 9, 1915, at Hotel Sherman.

Ricketson & Schwarz, well-known Milwaukee building material supply house, specializing in brick, was awarded the contract, at $27.50 per thousand, to furnish 100,000 Purington paving brick to the city of Stevens Point, Wis. It is interesting to note that several concerns underbid the Ricketson & Schwarz concern, but the board of public works and common council of Stevens Point wished to place the contract with the concern which could furnish Purington brick, a type which has been successfully used on the Stevens Point streets. Ricketson & Schwarz have secured some very substantial contracts for furnishing general building and facing brick for various churches, schools and other buildings about Wisconsin.

NATIONAL BUILDERS' SUPPLY ASSOCIATION.
Chamber of Commerce Bldg. Chicago, Ill.

Application for Membership.

The undersigned being heartily in accord with the "Constitution" and eligible to membership in the National Builders' Supply Association under requirements of Section I, Article 3 (ACTIVE), or in Section I, Article 4 (ASSOCIATE), does hereby apply for membership:

Firm name.....

Signed by.....

P. O. Address.....

Date.....

Officers.

President—Edw. K. Cormack, Chicago.
Treasurer—John J. Voelkel, New Orleans.
Secretary—L. F. Desmond, Chicago.

Directors.

J. H. Allen, Lincoln, Neb.
Charles Warner, Wilmington, Del.
C. N. Ray, Detroit, Mich.
W. F. Jahncke, New Orleans, La.
C. M. Kelly, Providence, R. I.
W. W. Coney, Cincinnati, O.
L. W. Macatee, Houston, Texas.
D. J. Kennedy, Pittsburgh, Pa.

CONCRETE

*Building Barges of Concrete

Several years ago there was some interest developed in the reports coming from Italy first, and afterwards from Germany, that certain experimenters were working on the development of a boat built of concrete. At first this seemed to be one

GENERAL VIEW OF CONCRETE BARGE.

of those erratic developments which come about in every new industry and the accounts of the varying success of the experimenters were taken with proper allowances. Some parties in Owensboro, Ky., about five years ago constructed a floating dock partly of concrete and it was very serviceable for quite a while. The writer has not seen it for a long time and is not prepared to say that he considers that particular attempt as very successful. However, that experiment, as well as many others made abroad, has demonstrated that the hull of a boat built of reinforced concrete will not only float but will carry a considerable load, and it is perfectly safe against most of the ills which attack wooden bottoms, such as the drying out of seams at the water line and the propagation of insects which destroy oakum above the water line so as to make serious and dangerous leaks in the case of unexpected loads or uneven lateral water pressure.

Another thing it demonstrated was that the concrete hull was perfectly safe at the water line in a swiftly running stream, when thin particles of ice as sharp as a razor edge are running for weeks at a time. This has been the means of cutting down more floating docks and sinking wooden hulls loaded and unloaded than all other causes combined, but the concrete hull had such a prodigious weight, as compared with the wooden or sheet iron hull that the motive power necessary to propel it through the water made the carrying cost prohibitive.

In the current number of the Tonindustrie-Zeitung, published at Berlin, there is a description of a concrete barge built by Mr. Rüdiger, of Hamberg, which seems to have overcome this principal objection as well as many others that naturally presented themselves in the consideration of such a case. The article, written by a Hamburg correspondent, says: "German boat constructors have made attempts from time to time to construct concrete hulls, but up to the present time we have always found very unsatisfactory results in their reports, the failure being attributed every time to the too-heavy weight of the body of the boat. The hull of concrete barges should not be such as to diminish the efficiency of the barge, and, on the other hand, they should have the same resistance and durability as steel bodies. Under the word efficiency I understand the proportion between the weight of the iron and the weight of the load, or, in other words, the power consumption per ton of load, this power being, of course, regulated by the weight of the iron. The sufficient durability is shown under the severest tests which the boat must be expected to stand; the hull must be able to be carried easily by any supporting surface and must be strong enough to stand the shocks from another boat of the same size which moves with a speed of about one meter per second. If the hull stands such a test it is fitted to stand the water pressure and the weight of the load. In the case of steel barges the weight of the hull is about one-third of the weight of the load capacity. The fact that concrete barges bend in the direction of the longitudinal axis when they happen to lay on ground, due to ebb for instance, with one end free, is regarded as another big disadvantage. All of these results did not promise a big success for the concrete industry as applied to the boat and steamer construction. But Mr. Rüdiger, engineer of Hamburg, has now built a few concrete barges which seem to be free from the defects mentioned above, and boat constructors in Hamburg are now more hopeful as to the future of this new line of industry.

"As to the measurements, the displacement of water is about 120 tons; namely, about 30 tons, due to the weight of the boat and 90 tons due to the load capacity. The total length is about 20 meters, the total width 5 meters and the depth (measured at the interior) 2.2 meters. The total weight of the

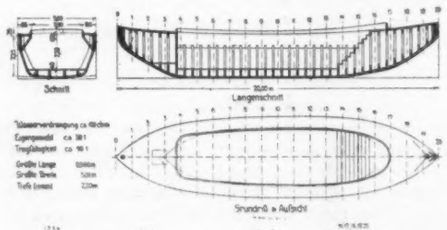
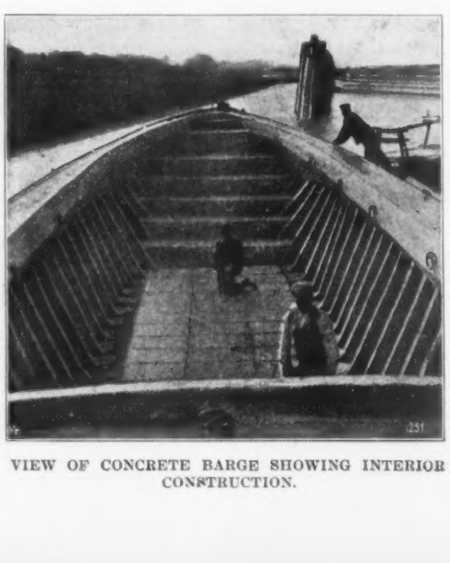


DIAGRAM OF SIDE AND TOP, SHOWING FLOATING SECTIONS IN BOTH DIRECTIONS.

body is therefore one-third of the load capacity and this is the same ratio as exists in the case of steel or iron barges. According to Mr. Rüdiger, this result was achieved by use of very light concrete and by the use of additional materials mixed with the concrete whose specific weight is below one. These parts fitted in the body of the barge are called floaters by the inventor. The floaters are made of a special kind of concrete that conserves the same volume under all circumstances. Due to this construction, the efficiency of the concrete barges is in no way smaller than in the case of iron bodies. I regret that I have no details as to the cost of propelling; at any rate I have been assured that the coal consumption has not increased and we find, therefore, in the Rüdiger boat a solution of the weight question at least.



VIEW OF CONCRETE BARGE SHOWING INTERIOR CONSTRUCTION.

"The condition that the barge should float freely on any surface and that it should be able to stand shocks from a boat of equal size moving at a speed of one meter per second is based on experience. The calculation has been based on such conditions figuring the running deck as frame and the insteps as frames stretched at the top. The resulting iron section has been divided among many smaller rods. The reinforcing beams at the bottom, which are missing

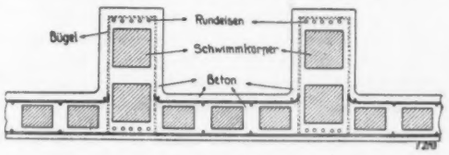


DIAGRAM SHOWING DISPOSITON OF FLOATS.

in many former constructions, contain iron in the following disposition: The iron rods are attached to the insteps at every edge, and due to this construction the tension of the lateral groins is transferred to the insteps. The arrangement for the absorption of shocks from other barges is worth due consideration. It is natural that the hulls of the barges are calculated in such a manner as to offer sufficient resistance to such shocks.

"But Mr. Rüdiger thought, most correctly, that concrete must be protected against the power of the first shock, in the same way as projectiles of heavy caliber are made of soft iron at the point so as to protect the harder body of the shell without diminishing in the least the energy of the shock. The board-edge is covered with wood, which is made elastic by putting ropes between the wood and the concrete wall of the barge. This wooden mantel is attached by means of screw bolts with nuts, and in case of a shock the wooden plank can be pushed in about one centimeter before the nut of the bolt reaches the iron strap that protects the wooden mantel against such an emergency. This arrangement fills its purpose. Several ramming trials and experiments that have been made with this arrangement have shown plainly that the outside wall is sufficiently elastic to take care of any shock. It is to be regretted, however, that these experiments were made without taking any records of figures.

"With a special arrangement of waterproof wooden chambers under the running-board edge, under the stairs and under the service room, Mr. Rüdiger has the complete floating solution, as the whole of the loading space can be filled with water without sinking the barge.

"The price of the concrete barge is about one-half of the price of a steel barge of the same water displacement. The process of construction is the following: At first a rough form of wood, having the shape of the boat, is built and the iron rods are put in. The exterior surface of the barge is then built by putting iron sheets on the inner side of the scaffold; the interior surface is built of iron sheet cases, leaving the necessary free spaces for the insteps, ribs, etc. The concrete is made very liquid and pressed in the frame with compressed air. After having taken off the exterior iron surface, the concrete surface is evened and coated with a specially prepared paint in order to increase the waterproofness."

"The cost of a steel hull for barge purposes amounts to about $5 per ton net carrying capacity, according to quotations of Chicago steel constructors. Allowing that the same thing can be done in Hamburg, which is reasonable to suppose, it would indicate that concrete barges of very light draft can be built for about $2.50 per net ton burden or there-

* The illustrations have been reproduced from the German publication. Hence the German descriptions.

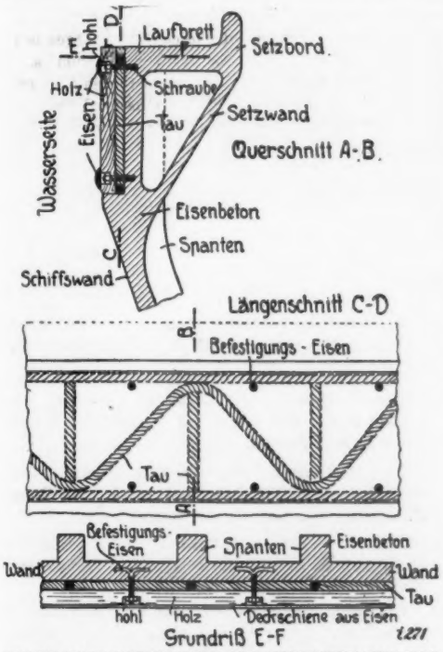


DIAGRAM ILLUSTRATING ARRANGEMENT FOR PROTECTION FROM SHOCKS.

abouts. This would make a very cheap barge and certainly would be attractive when the inherent advantages of concrete are taken into consideration."

Dates of Mid-West Cement Show Announced.

The dates for the Mid-West Cement Show and convention of the Mid-West Cement Users' Association have now been definitely decided as March 2, 3, 4, 5 and 6, 1915.

The show will open Tuesday night, March 2, and close Saturday night, March 6. The convention will be held Wednesday, Thursday and Friday mornings, March 3, 4 and 5. The dates have been set so that they will not interfere with the Chicago show. This will give the exhibitors two weeks between the close of the Chicago show and the opening of the Mid-West show.

By holding the show the first week of March of this year brings it about right for the exhibitor and purchaser of concrete machinery. It brings it about two weeks before the opening of the spring work and all of the contractors will know what their needs will be for the coming year and will be ready to purchase.

Secretary Whipperman is looking forward to the largest cement show that has ever been held in the West. The entire Mid-West is breaking down with bumper crops, which will make fall and winter business good, making necessary a large amount of new equipment in the spring.

The show will again be held in the spacious Omaha Auditorium, which is in the very heart of the city. Plats will be out soon and the first drawing for space will be announced later.

CONCRETE COTTON STORAGE SHEDS.

It is conservatively estimated that it will cost between $4,000,000 and $5,000,000 for the erection of about 5,000 warehouses in which to store the present cotton crop of Texas. The average capacity will be perhaps 500 to 800 bales. In order to make them as near fireproof as possible they will be largely of iron and concrete construction.

The type that is most favored is an open shed erected upon an eight-inch concrete foundation about eight inches above the level of the ground. Extending outward from this foundation is a shallow concrete gutter adequate for drainage. The shed is covered with corrugated iron or seven-foot studding. In the dirt floor are concrete rests four inches wide, six inches high and two feet apart, upon which the cotton can be stored on end. The open shed should have eight main aisles and six-feet gangways with an open space or gangway six to eight feet wide all around the storage on the outer edge, so that the cotton will be set back far enough to be protected from beating rains. Such structures may be erected at the cost of $1.50 per bale capacity—and perhaps much less. The greatest number of bales under one shed at which the minimum rate of insurance may be obtained is 2,500, and would require, under this plan of storage, a building 148 feet square.

The Norris Plant.

On this page is shown a good view of the plant of J. Frank Norris, Rochester, N. Y., together with some of its products. Mr. Norris manufactures "Norristone," which is a concrete building stone. He also makes concrete blocks, using the Jaeger Machine Co.'s hydraulic presses for this work. Artificial concrete with a bush-hammered surface is also produced at the plant, the latter material being used mostly as exterior trim for churches, stores, apartment buildings, etc., in competition with litholite and terra cotta.

The Norristone Sanitary Garbage Receptacle is a device containing many practical features, in that it rebuffs flies, is vermin proof, emits no bad odors and is out of sight, being sunken in the ground. It is easy to operate, the lever which controls the

PLANT OF FRANK J. MORRIS, ROCHESTER, N. Y.

opening and shutting of the lids responding to the lightest pressure of the toe. When sunken into the ground the garbage receptacle projects at the top from one to four inches, as may be desired. It is immune to either heat or cold.

The casing or body of the Norristone Sanitary Receptacle is made of Norristone reinforced concrete. A stout iron rim with an inside flange for holding a galvanized garbage pail is imbedded in the concrete, which in turn is held in place by lag screws also cast into the concrete. To this iron rim is hinged the company's patented lid, covering the entire top of the receptacle and projecting far enough over its edges so as to prevent any rain from seeping into the garbage. The receptacle is practically indestructible.

The John F. Casey Co., of Pittsburgh, has secured the contract for concrete work on a new filtration plant at Cleveland to cost $875,000. The same company is building the new Pittsburgh reservoir on Cabbage Hill, North Side.

The American Steel & Wire Co., of Pittsburgh, is arranging to build 1,140 feet of reinforced concrete wall along the Monongahela river at Braddock, Pa. It will be 39 feet high, 16 feet wide at the base and three feet wide at the top, and plans for it have already been approved by the War Department at Washington.

READY-MIXED AGGREGATE.

The Evansville Sand & Gravel Co., Evansville, Ind., are supplying a new commercial commodity which they have christened "Concrete Mixed." It consists of sand and gravel thoroughly mixed together in the proper proportions for concrete work. All that the purchaser has to do is to add the cement and water and stir it up. The advantage to the buyer comes in not having to buy the materials in their various sizes separately and then trusting to chance in getting them mixed in the proper proportions. In the structures of the Big Four Railroad in southwestern Indiana the engineers provided with specifications for this "Concrete Mixed" so as to secure a proper proportion of the aggregate which they considered to be most important in getting satisfactory concrete work. The Evansville Sand & Gravel Co. worked it out for them very satisfactorily and the result more than paid for the effort in the quality of the concrete made from this material and it amounted to a pronounced economy on the job. The Evansville Sand & Gravel Co. have in this way introduced the most intelligent plan yet devised for furnishing concrete material.

John Isaacson, of Wahoo, Neb., will establish a concrete products factory at Norfolk, Neb.

Rockford Concrete Construction Co., Rockford, Ill., name changed to Rockford Concrete Co.

Patrick Nugent, Plainfield, N. J., is erecting a large shed to his plant. The shed, when completed, will be used for manufacturing concrete blocks.

The William F. Tubesing Co. have removed their cement plant from Watertown to West Allis, Wis., and will erect two buildings on Sixty-sixth avenue.

The Herrick Construction Co., of Carlinville, Ill., has installed in their plant a new Peerless brick machine for manufacturing granite spar facing brick.

R. F. Dennis, of Peoria, Ill., has bought the plant and good will of the Havana Concrete & Tile Products Co. The new owner will proceed to operate the works immediately.

Universal Cement Products Co., Salisbury, N. C.; R. C. Cottan, manager, High Point, N. C., will establish a plant to manufacture cement tile and other cement products; construct building and install machinery.

The Oskaloosa Cement Stave Manufacturing Co., of Oskaloosa, Ia., builder of cement silos and tanks, finds that its business is increasing so rapidly that it is unable to take care of it at its plant in Oskaloosa and is planning on establishing a new plant at Harvey or Eddyville.

THE NORRISTONE SANITARY GARBAGE RECEPTACLE.

Garden Ornaments of Concrete.

On this page are shown some views illustrating the possibilities of concrete in garden ornamentation, such as is employed in the Castana Estate at Rosemont, Pa., near Philadelphia, the home of Alba B. Johnson, president of the Baldwin Locomotive Works.

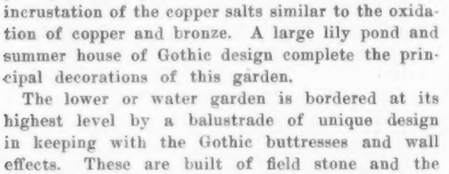
The concrete work was wet cast, the particular aggregates being a mixture of graded silica sand and white marble, with Medusa white Portland cement, while the pools also contain Medusa waterproofing. The plain work was cast in plaster molds and the ornamental or under-cut work in gelatine molds. After casting, at the age of 10 days, the pieces were immersed in large tanks of acid solution, until the outer cement coating was removed. This treatment left a fine grain texture, similar to rubbed stone, and shows the aggregates to best advantage. The general color tone is a warm gray and ivory, resembling in every respect the marble ornaments of the old gardens abroad.

Nearest to the house is the Garden of Meditation, a rectangular piece of lawn, formed by high evergreen hedges. Its only decoration are 10 flower pots, about three feet in diameter, which are ranged at each side of the lawn, and in the season filled with red geraniums. At the end of this garden is a statue of Eve Repentent, a piece of marble sculpture of the highest artistic merit.

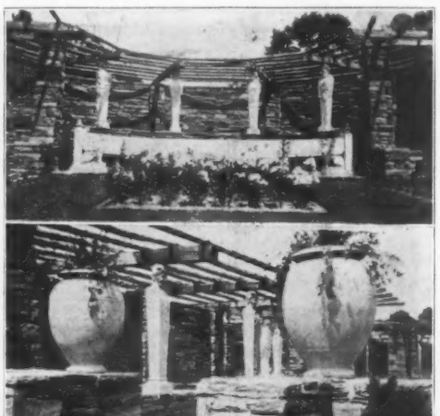
The upper garden is divided from the main lawn by a pergola of massive cast stone columns. At right angles to this pergola is a rose trellis, the concrete work in this feature being of particularly rich design and resembling verd antique bronze, which color effect is produced by immersing the concrete castings when two weeks old into a solution of sulphate of copper. This immersion completely fills the pores of the concrete and forms an incrustation of the copper salts similar to the oxidation of copper and bronze. A large lily pond and summer house of Gothic design complete the principal decorations of this garden.

The lower or water garden is bordered at its highest level by a balustrade of unique design in keeping with the Gothic buttresses and wall effects. These are built of field stone and the balustrade is made of concrete with a rather rough texture to harmonize with the stone piers. At the foot of this balustrade is a swimming pool, extending the full width of the garden, and flanked by sets of steps which are embellished with some especially well designed urns and vases. The water for this pool is supplied at each end by grotesque spouts of water life, modeled in concrete direct on the stone walls so as to produce the most natural effect—the heads apparently crawling out of the wall.

The central feature is a circular waterpool, about 18 feet in diameter, and designed to overflow, forming a sheet of water around its entire top edge, this being caught in the gutter at the base of the coping and from there draining under ground and supplying the well and moat at the lower end of the garden. At the axis of this pool to the left is placed an exedra seat, 20 feet in diameter, flanked by specially well modeled griffins, and the bench itself is enriched with a frieze of plant design interwoven with the names of the architects, a token of the owner's appreciation of their work. In the rear of this seat, at a higher level, is the Pergola of Seasons—Spring, Summer, Autumn and Winter—emblematically represented by the maiden, wife, mother and age. The outlookers and rafters of this pergola are cedar logs and rest directly on the statues. Surrounding the center pool are four circular benches supported by crouching water fauns.



LEFT—"AUTUMN." RIGHT—GRIFFIN DETAIL OF EXCEDRA SEAT.



ABOVE—PERGOLA OF SEASONS, EXCEDRA SEAT AND WATER GARDEN. BELOW—LARGE JARS AND OTHER DETAIL.

At the extreme end of the cultivated grounds has been placed a Temple of Love, and with the beautiful woodland as a background it forms a splendid terminal of the formal gardens. It is of Doric order in design, and the well finished details show an excellent example of the best in stonecrete craft. The columns were molded or turned upon a skeleton of expanded metal, as a stone column would be turned out of a rough block, by cutting off the surplus until only the final shape was left. In this case layer after layer of concrete was built up into a thoroughly welded mass, until the perfect column was created, true in line and texture and without a seam or casting mark.

Another interesting feature is the construction of the dome. After the parapet above the cornice was placed, the top ring or crown of the dome was set at its proper place, then eight ribs were fitted into grooves at the top of parapet and resting their upper end against the lower edge of the cross-piece. This formed a frame for the eight panels which closed the spaces between the ribs, the entire dome being formed of 17 pieces, no centering being used. The joints were then grouted and the outside of the dome received a coating of Medusa waterproofed concrete, finished to match the balance of the work, so that the inside of the temple shows a paneled ceiling, and the dome seems to be cast in one piece. The inside frieze is embellished by a border of dancing and singing youths, after Donatello. The floor of the temple is made of concrete stone flagging in a geometric pattern.

The concrete stone work was executed and furnished under the direction of Adolf Schilling, Haddon Heights, N. J. (now manager of the Pompeian Stone Co.), after designs by Alexander Mackie Adams, architect, and the landscape designing is by John S. Cope, both of Philadelphia, Pa. Their cooperation in this work has produced one of the finest examples of formal gardens in this country.

The results obtained by Mr. Schilling in other work with Medusa white Portland cement and Medusa waterproofing are also remarkable, and any construction will indeed be fortunate.

NEW INCORPORATIONS.

Concrete Products Co., Houston, Texas; capital stock, $5,000; L. L. Reber, F. B. Weeks, J. M. Blair.

The Raleigh Concrete & Construction Co., Raleigh, N. C.; capital stock of $15,000; incorporators, S. J. Botts and D. F. Betts.

The Eastern Cement Brick Co., Boston, Mass.; capital stock, $50,000; Fred E. Leavitt, Royal S. Roberts and John C. Caryo.

The McDonald Concrete Co., Austin, Texas; capital stock, $7,000; incorporators, J. P. McDonald, E. B. Robinson and W. A. Boswell.

Wm. F. Fuhrman, Barnard, N. Y., has been authorized to do business as the Star Cement Block Works, a non-incorporated concern.

Brazilian Flexstone Products Co., Augusta, Me., capital $2,500,000; manufacture cement products, etc.; Pauline Lowell, Hollowell, Me., president and treasurer.

Southwestern Concrete Flooring Co., of Oklahoma City, Okla. Capital stock, $10,000. Incorporators: C. Beatty, Enid; Ross N. Lillard, F. B. Williams, Oklahoma, City.

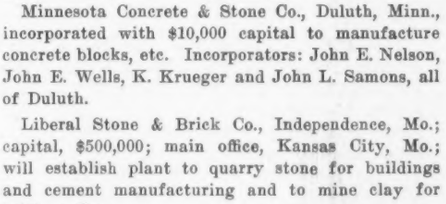
The Zeidler Concrete Pipe Co., of Muscatine, Ia., has just been incorporated. The general nature of the business will be the manufacture of concrete products made from cement, clay, sand and gravel.

Minnesota Concrete & Stone Co., Duluth, Minn., incorporated with $10,000 capital to manufacture concrete blocks, etc. Incorporators: John E. Nelson, John E. Wells, K. Krueger and John L. Samons, all of Duluth.

Liberal Stone & Brick Co., Independence, Mo.; capital, $500,000; main office, Kansas City, Mo.; will establish plant to quarry stone for buildings and cement manufacturing and to mine clay for brick works.

Orleans Concrete Block Manufacturing Co. & Realty Co., New Orleans, La.; incorporated with $25,000 capital; manufacture concrete blocks, building material, etc.; W. R. Robinson, president, and M. A. Guichard, secretary.

The Cement Products & Construction Co., Eau Claire, Wis.; capital stock $20,000; R. L. Rickman, R. W. Bingham and Charles Dufore; concern has been in operation for the past year; turns out cement block, sewer pipe and carries on a general contracting business in the erection of silos, viaducts, the laying of walks, etc.



LEFT—TEMPLE OF LOVE. RIGHT—PEDESTAL AND FLOWER VASE.

CEMENT

Opportunity to Export Cement

The United States imports relatively little hydraulic cement, only 84,630 barrels having been imported in 1913, whereas the domestic production in that year was nearly 93,000,000 barrels. There is little or no need to import any cement, for all parts of the country are now fairly well supplied with mills for the manufacture of Portland cement, and the supply of raw materials is practically inexhaustible. A significant feature of the cement industry, however, is the fact that, though only about 80 per cent of the normal cement-producing capacity of the country is employed at the maximum, there is often an overproduction; yet the exports of cement have scarcely exceeded 4,200,000 barrels in any year, this amount being only about five per cent of the total output—not sufficient to take care of the surplus production in a year of great activity.

There seem to be excellent reasons for stimulating the export trade in cement as rapidly as possible, for, although the export of a relatively bulky and low-priced material such as cement does not promise large direct profits to an individual producer, indirectly the creation and maintenance of an export trade should benefit the industry at large through the opportunity afforded of disposing of surplus stocks and thereby tending to maintain steadier prices.

American manufacturers have not yet made the most of their opportunities to establish greater export trade. Statistics show that the export of cement from England, Germany, Belgium and France not only have been considerably greater than those from the United States, but have borne a much higher ratio to the production in these countries. The quantity of cement exported by France in recent years is estimated to have reached at least 23 per cent of her production, and that of Germany about 17 per cent. There are few cement plants in South American countries, and in the past these countries have been supplied mainly from Europe. There is evidently an opportunity now for the cement industry of the United States to secure this trade. The extent to which we have made ourselves independent of foreign cement in times of peace is shown by the fact that 20 years ago our domestic product was less than one-fifth (18.2 per cent) of the consumption. In 1913 our imports were less than 0.1 per cent of the domestic production, and our exports were from 30 to 40 times the imports.

The Belgian Cement Industry

The present war has focused the limelight on Belgium in such a manner as to create many inquiries among cement men regarding its effect on the industry and its future outlook. The following statistics are given, therefore, for the edification of the questioners:

Belgian cement exports for the first quarter of the present year aggregated 145,683 tons, contrasted with 224,179 tons during the corresponding period of 1913, the decrease being 78,496 tons, or 35 per cent. Exports to Argentina showed a particularly heavy decline, amounting to 30,766 tons, as compared with 67,944 tons in 1913, a decrease of 37,178 tons, or nearly 55 per cent.

Up until the time of the breaking out of the war the industry appeared to be more satisfactory than previously, but prices were at a low figure and were somewhat lacking in stability. Demand from abroad had improved, especially from South America, while home requirements were moderately large. It is, moreover, likely that the demand for internal consumption in Belgium will be fairly good for some time to come on account of numerous improvements throughout the country which are being made or are in contemplation, notably the new large lock of the Kruischans at Antwerp.

It is stated that plans are still being considered for erecting three new cement works in the neighborhood of Zeebrugge, Huy, and Maestricht, respectively, for the manufacture of Portland cement. If carried out these schemes will bring the number of cement works existing in Belgium for the manufacture of this special class of cement to a total of 20.

New Cement Factory in Siam.

(Vice Consul General Carl C. Hansen, Bangkok.)

About one year ago a company was formed to manufacture cement in Siam. Registration of the company was to be effected under Siamese law, several of the promotors being Siamese. The capital was to be $444,000, of which $74,000 was to be given to the promotors in free shares.

The preliminary arrangements have been completed, and it has been decided to locate the plant at Bang Sue, about five miles from Bangkok, where transportation facilities will be available for bringing the cement to the capital both by rail and by water. Danish engineers have arrived and will proceed at once with the construction of the factory, the machinery for which has been ordered from Denmark. It is expected that the plant will be in running order in about eight months' time. This will be the first attempt at making cement in Siam, as hitherto it has been imported from abroad.

The total amount of cement imported during the fiscal year 1913 was 21,968 tons, value $218,519, the main sources of supply being Indo-China, with 11,014 tons; Denmark, 9,026; and Hongkong, 1,535.

Where Medusa Portland Cement Is Made.

The above is a reproduction of the Sandusky Portland Cement Co.'s plant located at York, Pa., where the famous Medusa white Portland cement is manufactured. Portland cement has proven to be a very dependable material in strength, convenience, durability and cheapness and has practically supplanted others in heavy constructions, but its unattractive color has prevented its use in high-class ornamental work. Gypsum plaster in various forms has been largely used for interior work but has proved unsatisfactory for outdoor use, through its inability to stand exposure to weather. Puzzolan and Roman cements have been considerably used in Europe for exteriors but have never attained the qualities of durability and waterproofness which Portland cement offers for exterior exposure.

Experiments made by Prof. S. B. Newberry, treasurer and general manager of the Sandusky Portland Cement Co., finally produced Medusa Portland cement of pure white color, equal in strength and other qualities to the best grade of Portland cement. This company built the above plant for the manufacture of this product and for the first several years has been shipping it in large quantities to the universal satisfaction of their customers. Medusa white cement is the first true white Portland cement ever manufactured. It is absolutely stainless and guaranteed to be so.

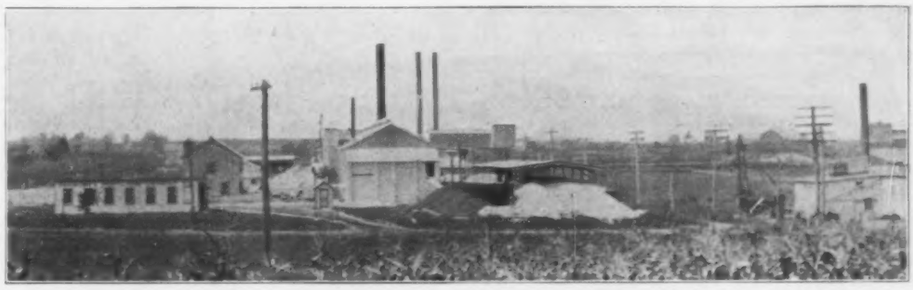
Medusa Waterproof White Cement.

The Sandusky Portland Cement Co., being the manufacturers of the famous Medusa waterproofing compound, also manufacture Medusa waterproof white cement, which is recommended for interior work. This product is Medusa white Portland cement with Medusa waterproofing compound ground together (not mixed), which is a guarantee that the waterproofing is equally distributed throughout the mixture and that satisfactory results will be produced.

PLENTY OF PEBBLES.

In 1913 nearly $320,000 worth of flint pebbles, used mostly in tube mills, were imported from France and Denmark. The cutting off of this supply by reason of the war should work no hardship, however, as an unlimited quantity is available at practically close range. The Canada Pebble Co., Ltd., with general offices at Port Arthur, Ontario, Canada, has enormous quantities of the highest grade flint pebbles ready for immediate shipment.

The Atlas Portland Cement Co. has called a special stockholders' meeting for October 14, to authorize an issue not exceeding $10,000,000 of new bonds and an increase of the preferred stock from $1,500,000 to $3,000,000. The bonds are to be used only in taking up other bonds or indebtedness or in acquiring new property or in permanent improvements. The stock will eventually be offered to stockholders at par. These arrangements are made mainly in anticipation of future requirements for a period of years and no sale of any part of the bonds has as yet been authorized by the directors.



PLANT OF THE SANDUSKY PORTLAND CEMENT CO., YORK, PA., WHERE MEDUSA WHITE PORTLAND CEMENT IS MANUFACTURED.

THE NEW CEMENT FACTORY IN THE PHILIPPINES.

Work on the new $600,000 cement factory at Binangonan, Province of Laguna, Philippine Islands, is progressing rapidly and it will probably be in operation by December 15, 1914. It will be one of the largest manufacturing enterprises in the Philippines, and will have an annual capacity of 150,000 barrels of cement. It will furnish employment for about 1,000 men, half of whom will be laborers, the remainder more or less skilled. A five-mile aerial cableway will convey the limestone from the quarry at the rate of 27 miles an hour and deliver it in the storage room of the plant without rehandling. A large pier is being built out into Laguna de Bay, from which the cement will be loaded into lighters for shipment to Manila. A barrel factory will be operated on the premises to utilize native timber. The plant will be operated by electricity generated from steam power.

CEMENT PLANT SOLD.

Judge E. H. Dryer, referee in bankruptcy, has confirmed the sale of the Atlantic & Gulf Portland Cement Co., of Ragland, St. Clair county, Alabama. The purchaser was G. Ransom Hartman, of Baltimore, Md., the gross purchase price being $791,768, out of which will be paid all administration charges and operating expenses and liabilities of the receiver and trustees while running as a going concern. The bondholders will receive a 40 per cent dividend amounting to $600,000 and the insured creditors a 40 per cent dividend amounting to $86,480. The concern was thrown into bankruptcy in July, 1912, and W. S. Lovell was appointed managing trustee. He has operated the concern at a profit of from $5,000 to $10,000 monthly.

REPLACING OLD WITH NEW EQUIPMENT.

Work begun a few days ago at the Iola Portland Cement Co.'s plant, at Iola, Kan., which aims to maintain the present capacity of the plant at 4,000 barrels a day. The change in the mill proposed is the removal of the seven small rotary kilns, 60 feet long and six feet in diameter, which are part of the original installation but which are obsolete types in the cement world today. In their place two new kilns, eight feet in diameter and 160 feet long, will be installed. These two kilns have a capacity equal to the seven small ones taken out, but can be operated much more easily and advantageously.

JAPAN SEEKS OUTLET FOR CEMENT.

Portland cement manufacturers in Japan, who have long labored under adverse circumstances, are reported as having decided to try and improve conditions by promoting exports. The Asano Portland Cement Mill and the Onoda Portland Cement Co. led the way last year by establishing branches at Dairen and Taiwan. Other companies are now extending the market in Chosen and China. In June, 1914, the Nippon Portland Cement Co. contracted to supply the Chosen Railway Bureau with 56,000 barrels, while the Sakura Portland Cement Mill will supply 3,000 barrels monthly to a Shanghai firm.

CEMENT MANUFACTURERS MEET.

A meeting of the Association of American Portland Cement Manufacturers was held at the Hotel Windsor, Montreal, Canada, Wednesday and Thursday, Sept. 16 and 17. The gathering was purely social in its import, being the regular quarterly meeting. There were about 60 delegates present. On the first day the members took a trip around the harbor, visiting plant No. 1 of the Canada Cement Co., Ltd., which is near Montreal. The second day was livened by a trip up the river and through Racine rapids.

Piedmont Portland Cement Co., 709 Austell building, Atlanta, Georgia, has been reorganized.

It is rumored that the plant of Seaboard Portland Cement Co., at Alsen, N. Y., will resume operations shortly.

The Nebraska Portland Cement Co., Superior, Neb., a $1,000,000 concern, started grinding shale and rock a few days ago.

San Antonio Portland Cement Co., San Antonio, Texas, will install automatic packing machine costing $45,000; pack cement bags and deliver to cars.

The Edison Portland Cement Co., Allentown, Pa., is reported to be operating at about 80 per cent of capacity. Prices for cement are about 90 cents a barrel at the mills.

Atlantic and Gulf Portland Cement Co., Stock Exchange building, Philadelphia, Pa., has increased its capital from $3,000,000 to $3,200,000 to provide for increased business.

Sterling Cement Corporation, New York; capital, $1,450,000; manufacture cement, etc.; incorporators, John N. Devine, 6 Beacon St., Boston, Mass.; Edgar B. Hammond, New Bedford, Mass., and George H. Hedge, New Bedford, Mass.

The cement plant of the Stewart Iron Co., near Sharon, Pa., was destroyed by fire a few days ago and the loss is estimated at $250,000. The fire was caused by crossed wires. The officers of the company said they would not rebuild the plant.

The first reported disastrous effect of the European war upon the Portland cement industry comes in a dispatch from Marlboro, Alberta, Canada. It is to the effect that the Edmonton Portland Cement Co, Ltd., has been forced to cease operation. The entire plant is closed indefinitely.

The plant of the Whitehall Portland Cement Co., at Cementon, Pa., is participating in the season's prosperity. This plant, under new management, is producing a greater tonnage than it has ever produced before although it can hardly make its product fast enough to meet its orders. Its stockhouses are empty.

A large cement factory is about to be put up at Kabardinka, in Russia, 20 miles from Novorossisk, at an approximate cost of $1,030,000. Manufacturers of cement-crushing and other suitable machines should address the manager of the Estate of Countess Ignatief, Kabardinka, Tchernomorskaia Government (via Novorossisk), Caucasus.

The monster 1,500-horse power engine of the raw material department of the Lawrence Portland Cement Co., Allentown, Pa., was recently badly wrecked by the breaking of a crank disc. The connecting rods, cylinder head and cross head flew in all directions, but fortunately no one was struck. The cylinder head was hurled with terrific force against a brick wall 15 feet away, striking with the force of a projectile. The plant will be shut down in part until repairs can be made, which will take 10 days or two weeks at least. General Manager C. A. Porter said the damage to the machinery amounted to several thousand dollars, and the loss in business will be a good deal more. The Lawrence company now has a force of men erecting a fence around the property. The posts are of reinforced concrete.

STARTING SOUTH AMERICAN SHIPMENTS.

Chattanoga, Tenn., Sept. 19.—First among Chattanooga manufacturers to secure new business as a result of the European war is the Dixie Portland Cement Co. Its first export of cement goes into territory in South America previously controlled by German and Belgium cement manufacturers.

An attractive rate was said to have been made by the Queen & Crescent system, which will encourage exports of cement if the South American market for American goods develops in accordance with predictions made by local shippers.

The only hindrance to exportation of American goods to South America is said to be the disorganized transportation facilities. All local freight agents handling export shipments have received circulars within the last few days advising them to discontinue issuing bills of lading over steamship lines owned and operated by European companies. Several of these have been maintaining lines between New Orleans and South America.

The Altoona Portland Cement Co., Altoona, Kan., recently finished a new coal plant and the installation of an extra engine unit. It is running at full capacity to stock up for the expected large fall trade. This trade is with local dealers through Kansas, chiefly, where extended building operations will accompany the influx of money from the crops. Present trade is rather light.

The Oklahoma Portland Cement Co., of Ada, Okla., has recently started up the very latest model of a 500 K. W., steam driven turbine generator of the General Electric Co.'s manufacture of about 700 horsepower. The power developed is conveyed to various outlying portions of the OK cement plant to such operations as driving stone crushers, pulverizing coal, operating packing machines, machine shops, kilns and such other individual machines as may be desired to be operated either continuously or spasmodically.

MOTOR TRUCKS FOR GREECE.

Fourteen freight car loads of one and one-half ton KisselKar trucks left the plant of the Kissel Motor Car Co. at Hartford, Wis., Sept. 11, consigned to the government of Greece.

This was the first installment of an order for 50 of these vehicles, placed by the Grecian minister to the United States, Agamemnon Schleimann.

It has been persistently rumored that these trucks are not really intended for the Greeks, but were bought for one of the present active combatants in the European war. This is denied by those who are best informed in the matter, and strong color is given to the denial by the presence at the Kissel plant for several days of Lieutenant E. Pappayanni of the Greek army, who, with an American engineer, made some final tests over the Wisconsin hills.

Each of the trucks had to be boxed for export, and it is estimated that the amount of lumber required to enclose the whole order would build three ordinary frame houses.

It is understood that the KisselKar trucks are but a part of an entire shipload of American goods bought by the Greeks. Speculation is current as to whether Greece is getting ready for a war of defense against Turkey, which in turn is declared to be getting ready to join Germany and Austria against the Triple Entente.

The Highway Commissioners of Edwardsville Township, Ill., have decided to build another mile of concrete highway toward St. Louis. The extension will be on the upper road, known as the Alton road.

LIME

The Production of Lime

BY RALPH W. STONE.

The lime manufactured in the United States in 1913 amounted to 3,595,390 short tons, valued at $14,648,362. This was an increase of 65,928 tons, or 1.87 per cent, in quantity and of $678,248, or 4.85 per cent, in value, when compared with the output for 1912, which was 3,529,462 short tons, valued at $13,970,114. The production in 1913 was the largest in the history of the industry, both in the quantity manufactured and in the value of the output. The average price per ton in 1913 was $4.07, as compared with $3.96 in 1912, and with $4.03 in 1911. The increase in average price was general for the entire country, increased cost of labor and supplies and scarcity of labor being given as the reason by the majority of producers. The value given represents the value of bulk lime f. o. b. at point of shipment and does not include any weight or cost of barrel or package.

Production of lime in the United States, 1896–1913.

Year.	Quantity.	Value.	Year.	Quantity.	Value.
	Short tons.			*Short tons.*	
1896		$5,227,900	1905	2,984,100	$10,941,680
1897		5,320,457	1906	3,198,067	12,480,653
1898		6,886,549	1907	3,002,524	12,656,705
1899		6,983,067	1908	2,700,873	11,091,186
1900		6,797,498	1909	3,484,974	13,840,072
1901		8,304,054	1910	3,505,954	14,088,039
1902		9,335,518	1911	3,392,915	13,689,054
1903		9,265,883	1912	3,529,462	13,970,114
1904	2,707,809	9,951,456	1913	3,595,390	14,648,362

The total number of plants reporting operations in 1913 was 1,023, as compared with 1,017 in 1912 and with 1,139 in 1911. Although a small increase is thus shown, many of the states exhibit a decrease in plants due in part to the tendency of the industry toward combination, which tendency appears to be established by the record for the last few years, notwithstanding the fact that the total number of kilns reporting operations increased from 2,203 in 1912 to 2,338 in 1913. Many of the operators, however, did not report either in 1912 or in 1913 the number of kilns composing their plants. Isolated lime manufacturers, operating on a small scale, reported their plants as idle on account of cost of production and cost and scarcity of labor, which prevented competition with lime shipped in from the outside. In 1913, 44 states, including Hawaii and Porto Rico, reported a production of lime, Nevada also contributing a small output. In 1912 there were 43 states. The five leading states in 1913 were, in order of production, Pennsylvania, Ohio, Wisconsin, Virginia and West Virginia. In 1912 the order was Pennsylvania, Ohio, Wisconsin, West Virginia and Maine. The increase in Virginia was for a large quantity of lime burned and used by alkali manufacturers. This output was not included in the 1912 figures. Pennsylvania produced 2.37 per cent of the lime output and Ohio 1.38, but Ohio's production was from 38 plants, while Pennsylvania's output was from 494 operations, mostly the stack kilns of farmers burning lime in small quantities for use as a soil enricher for their own or their neighbors' farms. Although the number of operators in Pennsylvania was practically the same in 1913 as in 1912, this practice of burning in small quantities has been gradually falling off, on account of the difficulty in obtaining labor and wood for burning, as well as of the increased cost of coal. Also many of the farmers prefer patent fertilizers as cheaper and easier to obtain. The lime burned for use by the farmers is valued at six to 12 cents per bushel of 70 to 80 pounds, according to whether the fuel is purchased or obtained on the farm. Wood-burned lime has usually a higher value than the coal-burned lime, but the low average price per ton for this lime decreases considerably the average for the entire state. Also in Maryland, Virginia and West Virginia a considerable quantity of lime is burned in small quantities for agricultural use. A quantity of marl burned or dried and used for agricultural purposes is included in the lime figures for New York, North Carolina, South Carolina and Wisconsin. A quantity of limestone is sold each year to various burners of small lime kilns and the value of this lime is not included in the lime figures, but is included under the value of stone in the limestone report. This also applies to a considerable quantity of stone quarried and sold to sugar refiners, smelters, and alkali works and burned by them into lime after the stone leaves the hands of the quarrymen. A quantity of lime manufactured in Duluth, Minn., from stone quarried in Ohio is not included in the 1913 figures, as the company quarrying the stone no longer owns the lime plant. Stone from Ohio is also shipped to Wisconsin and there used for the manufacture of lime not included in these figures.

Production of hydrated lime in the United States, 1906–1913, in short tons.

Year.	Quantity.	Value.	Average price per ton.	Number of plants reporting operations.
1906	120,357	$479,079	$3.98	30
1907	140,135	657,636	4.69	33
1908	136,441	548,302	4.02	48
1909	204,611	904,909	4.42	50
1910	330,819	1,288,799	4.02	51
1911	356,503	1,572,057	4.50	60
1912	416,800	1,829,054	4.39	64
1913	493,389	2,205,657	4.47	80

Production of lime in the United States in 1913 by uses, in short tons.

Building lime	1,358,099	$5,011,826	$4.02
Chemical works	366,369	1,539,226	4.20
Paper mills	294,090	1,187,154	4.04
Sugar factories	32,236	216,768	6.72
Tanneries	49,691	217,390	4.38
Fertilizer	680,229	1,799,585	3.95
Dealers—uses not specified	662,255	3,153,457	4.76
Other uses*	202,511	722,946	3.57
Total	3,595,390	14,648,362	4.07
Percentage of increase (+) or decrease (−) in 1913	+1.87	+4.85	
Hydrated lime, included in total	493,389	2,205,657	4.47
Percentage of increase (+) or decrease (−) in 1913	+18.39	+20.59	

* Includes lime for sand-lime brick, slag cement, alkali works, steelworks, glassworks, smelters, sheep-dipping, disinfectant, manufacture of soap, cyanide plants, glue factories, purification of water, etc.

Quantity and value of lime burned in the United States in 1913 by States, in short tons.

State or Territory	Rank of State by quantity.	Quantity	Value.	Rank of State by value.	Average price per ton.	Number of plants in operation.
Alabama	18	75,668	$290,394	18	$3.85	13
Arizona	38	15,202	96,550	33	6.44	3
Arkansas	32	19,391	85,846	39	4.94	6
California	17	73,715	569,574	9	7.72	19
Colorado	30	7,573	46,390	29	6.09	8
Connecticut	15	76,192	262,347	13	3.02	10
Florida	24	16,945	89,973	34	5.34	5
Georgia	37	3,580	13,483	38	3.80	3
Hawaii	36	(a)	(a)	31	5.15	1
Idaho	39	4,130	25,413	35	6.42	4
Illinois	12	98,977	420,231	11	4.24	16
Indiana	11	96,259	325,905	15	3.38	30
Iowa	26	10,015	47,539	36	4.74	3
Kansas	42	(a)	(a)	40	4.55	1
Kentucky	31	6,901	26,215	34	4.35	9
Maine	7	105,970	656,824	4	6.17	5
Maryland	10	108,983	357,089	13	3.28	49
Massachusetts	8	126,365	603,541	8	5.36	10
Michigan	14	77,023	351,852	14	4.57	16
Minnesota	23	22,800	113,300	24	4.97	5
Missouri	6	161,770	734,030	7	4.54	27
Montana	30	(a)	(a)	30	5.94	2
Nevada	44	(a)	(a)	44	6.00	1
New Jersey	16	14,379	55,775	28	3.88	15
New Mexico	41	1,346	6,612	41	4.91	3
New York	9	114,071	505,157	10	4.41	94
North Carolina	27	9,815	47,598	27	4.82	4
Ohio	2	607,680	1,976,316	2	3.27	38
Oklahoma	29	3,640	13,160	30	4.61	4
Oregon	33	4,747	30,704	33	6.47	5
Pennsylvania	1	853,927	2,743,197	1	3.39	494
Porto Rico	35	4,728	19,707	37	4.16	28
Rhode Island	28	(a)	(a)	26	6.53	1
South Carolina	40	(a)	(a)	42	3.00	1
South Dakota	25	4,217	25,610	32	6.73	5
Tennessee	13	93,427	395,400	17	4.13	15
Texas	19	45,897	265,893	18	5.57	10
Utah	20	8,689	35,704	25	4.53	10
Vermont	19	32,040	171,138	20	5.33	9
Virginia	4	236,065	998,442	5	3.46	68
Washington	20	28,070	173,965	19	6.27	9
West Virginia	5	223,602	789,561	6	3.36	31
Wisconsin	3	263,006	1,005,496	3	3.14	39
Wyoming	43	(a)	(a)	43	15.93	1
Other States*		16,908	105,339			
Total		3,595,390	14,648,362		4.07	1,023

a Included in "Other States."
* Includes Hawaii, Kansas, Montana, Nevada, Rhode Island, and South Carolina.

(Continued on page 49.)

With the QUARRIES

Quarry Accidents in the United States.

(Compiled by Albert H. Fay.)

According to the figures compiled by the Bureau of Mines and presented in this paper, the number of men killed in and about the quarries in the United States during 1912 was 213. Compared with the fatalities reported for 1911, which totaled 188, there was an increase of 25, or 13 per cent. The number of men employed in the quarry industry during 1912 was 113,105, as compared with 110,954 in 1911, approximately 2 per cent more. The fatality rate for 1912 was 1.88 per 1,000 men employed, as compared with 1.69 during 1911, an increase of 11 per cent.

In France (Table 27) for the 5-year period, 1906 to 1910, inclusive, the fatality rate from quarry accidents was 1.08, and in Great Britain (Table 26) for the 10 years, 1903 to 1912, inclusive, the rate was 1.04 per 1,000 men employed. The higher fatality rate in the quarries of the United States probably results from less stringent regulation and less systematic inspection. Nearly all quarries are open to the sky, so that the workers have ample light and air and are not exposed to the risk of roof falls; hence the fatality rate should be lower than in underground mining for coal or metals.

Although quarry work is performed in the open, yet falls of rock or overburden caused 23.94 per cent of the fatalities reported for 1912. The principal hazards of quarrying appear to be about equally divided as follows: Falls of quarry material, explosives, and haulage; these three represent slightly over two-thirds of all fatalities. The handling and transportation of the material produced in the quarry ranks third.

Limestone Quarries.

The figures for limestone quarries are compiled from the reports of 1,760 operators employing 56,376 men, of whom 40,979 were employed in the quarries and 15,397 outside of the quarries. The total number of deaths and injuries due to accidents reported is as follows: Deaths, 101, or 1.79 per 1,000 men employed; serious injuries, 463, or 8.21 per 1,000; and slight injuries, 3,234, or 57.35 per 1,000.

Cement Rock.

The cement-rock quarries are represented by 86 operators, who employed 9,462 men during 1912. The number of deaths and injuries due to accidents reported is as follows: Deaths 30, or 3.17 per 1,000 men employed; serious injuries, 119, or 12.58 per 1,000; and slight injuries, 1,084, or 114.56 per 1,000. The high ratio of injuries in the cement-rock quarries, as compared with other quarries, is probably due to many cement quarries being operated on a large scale by large corporations that keep better records of serious and slight injuries and render more detailed reports. Many small quarries keep no record of serious and slight injuries, hence the seemingly low ratio of nonfatal accidents in quarries other than cement rock and limestone.

Louisville, Ky., Sept. 19.—Rock crushing and quarrying companies are getting demands in increasing numbers from the farmers of the state for ground limestone to spread on their fields to sweeten the soil, especially in view of the agitation being conducted by the agricultural department of the state to induce clover and alfalfa growing, necessitating the use of lime to get the soil in condition. One response to this demand is noted at Tyrone, Ky., near Lawrenceburg, where the Kentucky River Sand & Stone Co. has installed a plant with an output of 100 tons daily of ground limestone for agricultural uses. This plant is the biggest thing of its kind, it is declared, in that section of the state.

INDIANA ROAD SUPERINTENDENTS MEET IN INDIANAPOLIS.

The annual convention of the Indiana county road superintendents was held at the Denison hotel, Indianapolis, Ind., Sept. 9 and 10, with a very large attendance. The most important questions discussed by the members were the proper maintenance of roads by a uniform method, also standard specifications for the different types of road construction. F. W. Connell, secretary of the Indiana Crushed Stone Association, addressed the meeting on the subject of the proper method of maintaining water bound macadam roadways.

GROUND LIMESTONE PLANT OF THE A. & C. STONE & LIME CO., GREENCASTLE, IND.

The Atlas Stone Co. and the Highland Stone Co., at Olive Hill, Ky., recently resumed operations giving employment to 150 men.

Fire caused considerable damage to the plant of the Ft. Smith Crushed Stone Co., Ft. Smith, Ark., a few days ago. The loss has not yet been approximated.

The R. B. Tyler Stone Co., at Ducker's Station, Ky., is only operating to about half of its capacity at this time. Roadmaking in Jefferson county and surrounding territory is very quiet just now, but will probably resume late in the fall.

Charles Caudill recently purchased at public auction the interests of all of the members of the Simpson County Limestone Co., whose quarry is located in Warren county, near Bowling Green and Woodburn, Ky. The stone from this quarry is used almost entirely for fertilizing purposes, and is said to be unusually good for the purpose.

Ground Limestone for Soil Improvement.

The A. & C. Stone & Lime Co. has built an up-to-date grinding mill at its Greencastle, Ind., quarry, to be able to supply the growing demand for ground limestone. The equipment produces a very high-class material on account of running through 1/16 inch mesh, insuring a finely divided product that will mix well with the soil in a short time, also through a dryer that eliminates all moisture, giving a strong, clean material containing no water to increase weight in freight charges.

A large proportion of Indiana soil is poorly supplied with lime and a very considerable portion is actually acid. It is now a recognized fact that fertilizers and phosphates alone on these soils will stimulate growth to a certain extent only, as there is a deficiency of elements in sour soil for plant foods, thus making it essential for an application of ground limestone, which acts as a sweetener to the soil.

The subject of liming the soil has been one of widespread investigation by the agricultural experiment stations throughout the country and the results have shown to a very marked degree that carbonate of lime is a mighty power in effecting crop yields. In many cases the crop has been doubled through its use. The wealth of Indiana is in her soils and her future depends on the proper management of them.

NEW INCORPORATIONS.

The Lippman-Schneider Stone Co., Milwaukee, Wis.; capital stock $25,000; Walter E. Lipman, Louis Schneider and Frank Schneider.

The Oakland Lime & Stone Co., care of Chas. F. Hammond, Second St., Oakland, Md.; capital $25,000; manufacture limestone, sand, gravel, etc.; Chas. F. Hammond and others.

Ottawa Crushed Stone Co., Ottawa, Ill.; capital $20,000; general stone quarry business; William A. Sharp, Rudolph Roleness, Harry B. Tefft.

BIG QUARRIES TO RESUME WORK.

The big limestone quarries belonging to the Pittsburgh Limestone Co., at Altoona, Pa., will resume on full time next week after being idle since May 29th last. They give employment to about 300 men and are the principal feeders to the main plant of the United States Steel Corporation at Braddock. This is taken as an indication that the big plants about Pittsburgh are preparing for a general resumption and a continuance on full time indefinitely.

REOPEN STONE QUARRY IN MARYLAND.

Bushey & Sons have reopened their stone quarry at Caveton, Md., which has been partially closed since last January. The company has a large contract with the W. M. for furnishing stones to reballast their system. The quarry is working from 60 to 75 men in addition to what they have already employed regularly.

A. C. Dietrich, of Marysville, Pa., has placed a stone crushing plant on Prospect Hill near that point and will engage in the crushing business on an extensive scale.

Waterbound Macadam.

With waterbound macadam, as well as other pavings and especially concrete paving, the quality of the stone plays an important role, says Engineering and Contracting. Soft stone should be avoided as much as possible. For waterbound macadam, the author advocates the two-course macadam—bottom course, 4 inches lose stones of 2½ inches ring, well rolled with a steam roller of at least 10 tons, no filler; top course, 4 inches loose stones of 2½ inches ring, an appropriate binder entered dry in the course with broom and roller in as great a quantity as possible. The first layer of the binder should be applied before the rolling is begun, and when it is not possible to enter more binder without the roller spraying is resorted to.

The road should be sprinkled until saturated, the sprinkler being followed by the roller. More screenings must be added if needed, and the sweeping, sprinkling and rolling continued until a grout has been formed of the screenings, stone dust and water to fill all voids and form a wave before the wheels of the roller. After that, enough screenings should be spread over the macadam to leave a wearing surface at least three-eights of an inch thick. The crown of the macadam is generally ¾ inch for a 16-foot wide surfacing; for a bituminous or tar surfacing ½ inch is enough; for concrete ⅛ inch is suitable.

The choice of a macadam as a surfacing depends not only upon the nature and the importance of the traffic, but also on the quality and the price of the stone. In the opinion of the author, the best macadam would be of one-sized stone, 2½ inches ring, with an ordinary soil, a total thickness of about 9 inches comprising the foundation; also macadam stone should not be mixed with an undue quantity of smaller stones or sand. For a wearing course such a mixture containing too great a proportion of small-sized stones and of screenings is not suitable. As a rule it is not uniform, the larger and smaller sizes have a tendency to separate and, if not mixed with care and laid with shovels, the resulting macadam will have a very irregular wearing quality, and ruts and depressions will consequently follow.

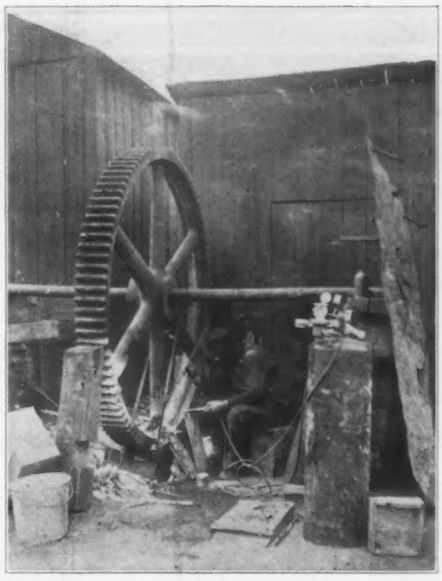
The question of the width of the surfacings is not yet completely settled. Meanwhile experience shows that a width of 16 feet is suitable for an extensively traveled road and for less important roads 14 feet is convenient. Shoulders should have a width of at least 4 feet.

An Indispensable New Tool.

The heat obtained by the combination of oxygen and acetylene is 6,300 degrees Fahrenheit, about the same as the electric arc. The Krupp Gun Works at Essen, Germany, originated the process of welding cast iron, steel and other metals by its use. The first welding machine of this kind came to this country in about 1904, and since then the development of this process has been very rapid. The United States Navy was among the earliest users, and today this equipment is on every battleship as well as on the smaller naval craft.

The Engineering Sales Corporation, of Chicago, has a wonderful device which, though small in dimensions, will prove to be one of the most important members of the rock crushing equipment. A man had just as well forget to order a screen or an elevator as to try to do business without it. It is known as the autogenous cutting and welding tool. With it castings of iron, steel, copper aluminum and brass can be welded or cut as desired; metal can be added by building up, as in the case of a cog in a gear wheel—in short, it makes the repairs to the steam shovel, the locomotive and all the balance of the plant a very simple and inexpensive proposition.

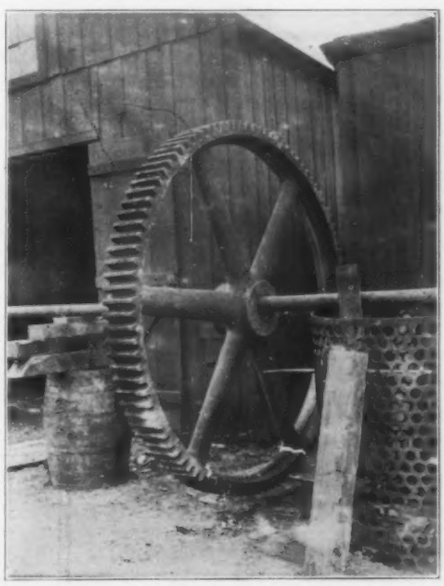
The accompanying illustrations give a very fair



MASTER WELDING TOOL REPAIRING A CAST IRON GEAR.

sample of what the "master welding apparatus" can be depended upon to do for the quarryman with very little teaching, for the plant blacksmith can work it the same as his other tools. The first illustration shows a broken gear wheel 96 inches diameter of cast iron and weighing about 3,500 pounds. It was broken at two spokes and through the rim at the same place, and shows the blacksmith at work with the "master welding apparatus" repairing the wheel. The lower picture shows the wheel after the repairs were completed. This was at a crusher plant in Wisconsin, and the gear went back to work as soon as it cooled off instead of being consigned to the scrap heap. The time saving alone in this particular case was worth a great deal, to say nothing of the price of such a gear.

The White Oak Crushed Stone Co., White Oak, Conn., just organized, is having ground cleared ready for business, and recently let contracts for $15,000 worth of machinery to the Power & Mining Machinery Co. of New York and Chicago. The crushed stone company will install its equipment



SAME GEAR AS ABOVE AFTER REPAIRING.

this fall and will be prepared to go ahead with a rush in the early spring. The company's plant will have both steam and trolley transportation facilities.

H. D. Allen, representing the General Crushed Stone Co., of Philadelphia, recently made an extensive business trip through Pennsylvania. While on the tour Mr. Allen met the highway committee of Myerstown, and explained the merits of Amiesite, the new road material manufactured by his firm.

A fire which broke out from an unknown cause recently totally destroyed the Climax Limestone Co.'s plant at Wick Station, near Harrisville, Pa. The loss is estimated at about $15,000 which is fully covered by insurance. E. B. Good, W. H. Roberts and I. J. Hartje of Carnegie, Pa., are the owners of the plant.

G. H. Davis, quarryman and shipper of crushed stone at Blue Springs, Neb., recently closed a contract for from 8,000 to 10,000 tons of crushed stone for four miles of paving in the city of Beatrice, Neb. This, with other orders, is crowding the concern to the limit of its capacity. Trade during the earlier part of the season has been slow and rather erratic, says Mr. Davis.

The John Prince Crusher Co., with a crusher at Leeds, Mo., is running full time and has not yet this fall had to use its storage. This company has the only crusher on a Rock Island switch, which has been a very considerable advantage this year because of extensive expansion of trade along the Rock Island lines. Rock destined for Rock Island Railroad points can be shipped by this company at a saving of $3.00 per car to a cent per hundred.

MANILA SWEARS BY CONCRETE.

Manila, the thriving city of the Philippine Islands, has been converted to reinforced concrete construction. Those of its inhabitants, who have given study to improved methods of construction, declare that reinforced concrete will withstand earthquakes better than anything they have yet heard of.

TRADE LITERATURE.

Asphalts, Their Sources and Utilizations. 1914 Road Edition. By T. Hugh Boorman, C. E. New York. Cloth, 7x10, 192 pages, 55 plates, price $2. Deals with the developments in road building during the last five years. The five additional chapters treat of Rock Asphalt Maintenance, Asphalt Macadam Roads, Cold Laid Asphalt Roads, Bituminous Road Surfaces and Asphalt Blocks for Roads. Address ROCK PRODUCTS AND BUILDING MATERIALS, 537 S. Dearborn St., Chicago, Ill.

ISSUES SPANISH CATALOGS.

The progressiveness of the Allis-Chalmers Mfg. Co., Milwaukee, Wis., has again been demonstrated by two excellently compiled and printed Spanish catalogs which describe and illustrate quite minutely the various machines manufactured and sold by this company. The wide variety of machines includes everything from the Allis-Chalmers stone crusher to the immense Allis-Chalmers pumping engines.

Practically all of the South American trade and correspondence is conducted in the Spanish language, and this venture on the part of the Allis-Chalmers Mfg. Co. bespeaks for them a fair amount of this business.

GYPSUM PRODUCTS

The Manufacture of Gypsum Products

The bulk of the gypsum produced in the United States, as well as in foreign countries, is manufactured by grinding and by partial or complete calcination into the various plasters, such as plaster of Paris, molding and casting plaster, stucco, so-called cement plaster or hard-wall plaster, flooring plaster, hard-finish plaster, etc. Much of the so-called cement plaster is made directly from gypsite, an impure unconsolidated earthy or sandy form of gypsum, which in many places is found to contain a suitable percentage of foreign material, so that the addition of a retarder is not necessary to effect a slow set. Where gypsite deposits are not available, cement or hard wall plasters are made from rock gypsum by the addition of various mineral or organic retarders. A large part of the structural plaster now produced is used in specially prepared conditions that appeal to the builder on account of their convenience.

Plaster Board.

A plaster board is pressed from plaster interlaminated with sheets of thin cardboard, felt or wood. This plaster board is furnished in thin sheets of different sizes— as ¼, ⅜ and ½ inch thick by 32 by 36 inches, comprising 8 square feet of surface; ⅝ inch thick by 27 by 48 inches, equivalent to 1 square yard; also 32 by 24 inches, 32 by 18 inches, and 24 by 18 inches. This board is designed to be nailed directly to the studding in place of lath and to receive a coat of wall plaster directly on its outer surface.

Partition Blocks.

Fibered plaster is molded into both solid and hollow blocks and tiles, which are used in partitions and interior construction, and these, as well as the plaster board, have been proved to be of value as fire retarders. Gypsum tile or partition blocks are commonly 12 inches wide, but vary in thickness from 2 to 8 inches. They are made 24 to 30 inches long, except 8-inch blocks, which are 15 inches long. Gypsum tiles are lighter than clay or concrete tiles; they are straight and true; they can be cut by a handsaw; and on account of light weight and large size they can be laid rapidly.

Wall Plaster.

The employment of gypsum wall plasters has assumed noteworthy proportions in the last few years. Plaster manufacture represents the most important single application of gypsum in this country. Hard wall plasters consist of plaster of Paris and some fiber, like hair or wood fiber, with the addition of a retarder. They may contain either hydrated lime or clay to increase their plasticity and spreading properties. This is not necessary with plasters made from gypsite, because the raw material contains considerable quantities of clay. Hard wall plasters are of two general grades, one having brown or gray coat, and the other a white or tinted finish coat.

Keenes Cement.

A number of hard-finish anhydrous plasters are made from gypsum, the most prominent representative of the group being Keenes cement, which was originally manufactured under English patents that have expired. The name "Keenes" is now applied by several manufacturers in the United States to their product, made by calcining very pure rock gypsum in lump form at a red heat and adding to the resulting dehydrated lime sulphate a substance like alum or borax. Keenes cement makes a very white and very hard plaster. It is used as a backing and surface for artificial marble and for ornamental moldings and castings and is capable of taking a high polish. Its use as a wall plaster is increasing, but when so used it may be mixed with lime.

Flooring Plaster.

Flooring plaster is another example of this type of plaster. Gypsum is used in the manufacture of calcimines, in water paint and tints, and, to a considerable extent, as an ingredient in dry colors, notably in Venetian reds. When used in excess in mixed paints, it is regarded as an adulterant. The unburned or the dead-burned forms of gypsum may be used to a certain extent with oil paints, because they are chemically inactive. The partly dehydrated form is not suitable for such use, but can be used with water.

Although gypsum plaster is not suited to many kinds of masonry work, it is recommended by the producers for use as mortar in setting gypsum block and tile in interior partitions. Gypsum plaster has been used extensively for the exterior finish of temporary structures, such as exposition buildings; it should be used successfully for permanent exterior construction in arid climates; it is so used in southern California, and might be also in parts of Utah, Nevada, Arizona, and New Mexico. Gypsum blocks are used for exterior construction in places in Utah and Arizona.

Canada's Enormous Gypsum Deposits.

Although gypsum has been mined in the province of Nova Scotia for over 100 years and its products, including plaster of Paris, cement, plaster, hard wall plasters, stucco, etc., are in daily and common use all about us, says the Industrial Advocate, a very few Canadians appreciate the enormous possibilities of this industry. The mineral is so common to so many Nova Scotians that they have learned to regard it as of no special value and in some cases more or less of a nuisance.

With the increasing demand for gypsum and its products and with the largest known accessible deposits of exceptional purity existing in the province of Nova Scotia, one does not require a very strong imagination to foresee for this industry a very bright future.

American Capital in It.

Such properties as are today being operated in Nova Scotia are chiefly controlled by American capital and, with the exception of one or two small concerns, the quarries are operated and owned by American mill owners who ship the crude gypsum to their American mills and convert it into its finished products.

The American capitalists are able to do this with a duty against them of 10 per cent ad valorem on the import of the raw material into the United States and finish up these products and reship them to Canada against a heavy tariff.

Approximately 40,000 tons annually of crude gypsum is exported from Nova Scotia and New Brunswick into New York, while the total gypsum manufactured into various forms in the year 1912 was only 76,000 tons. The same year gypsum products from the United States were imported to a value of close to $1,000,000, in spite of a duty of $2.50 per ton against its import.

Canada ranks third among the world's producers of gypsum, its output being exceeded only by that of the United States and France.

Gypsum occurs in most of the provinces of Canada, but many of the deposits are of no economic value at the present time, due either to their inaccessibility or the presence of anhydrite which renders the gypsum valueless for manufacturing purposes.

Small quantities of gypsum are mined in the vicinity of Paris in the province of Ontario and also in the province of Manitoba and St. Martin Lake. The provinces of New Brunswick and Nova Scotia, however, are the chief sources of supply, and although anhydrite is found in many extensive deposits, there are numerous occurrences where this blemish does not appear.

WHEELING CO. EXHIBITS AT FAIR.

The Wheeling Wall Plaster Co. had a display in Machinery hall at the recent Wheeling Fair which proved of great interest to contractors and others. Two large contractors' wagons were loaded with sacks of their various grades of wall plaster. The fact that you "See Their Wagons Everywhere" doubly impressed the fact that the Wheeling Wall Plaster Co. are leaders in their particular line.

They handle in their clay products department the well-known "Natco" tile. Their wide field also embraces Bostwick metal lath and Herringbone lath.

They have a modern equipped wall plaster works with big warehouses and yards. Their high standard and products, with consistent prices and business methods that inspire confidence, make a man once a customer always a customer.

They purchased over 50,000 wallets, which they presented free to every person visiting their exhibit, together with a most comprehensive account of their business.

DECIDES CEMENT GUN OPERATORS ARE NOT PLASTERERS.

A recent decision of the Supreme Court of Massachusetts was to the effect that cement gun operators are not plasterers. The case was brought before the court by the New England Cement Gun Co., which sought a decree restraining officers and members of Operative Plasterers' International Association of the United States and Canada, Union No. 10, Boston branch, from causing or taking part in any boycott against the plaintiff's business. The decision also prevented the defendants from causing or inciting any sympathetic strike against the plaintiff or its customers for the purpose of preventing the use by the plaintiff of its machinery or for the purpose of compelling it to discharge any of its non-union members. The action was brought because of trouble encountered in the construction of the Old Colony Real Estate Trust building in Boston. The interior plastering was being

(Continued on page 49.)

SAND and GRAVEL

Commercial Sand and Gravel.

Further Figures of Their Production, with Explanatory Details.

Molding sand, which in 1912 for the first time exceeded a production of 4,000,000 tons, seems to have had a severe setback in 1913, if the returns are as complete as in 1912. The production of molding sand reported for 1913 is 3,563,583 tons, valued at $2,230,217, a decrease in quantity of 921,797 tons, and in value of $488,509 from the production of 1912. Although New Jersey made a good increase in production, there was a very large decrease in Illinois, Indiana, Michigan, New York, Ohio, and West Virginia. Thus the depression in the iron and steel trades shows itself, or an overproduction in 1912 is counterbalanced.

Glass sand, on the contrary, was marketed in greater quantity than ever, the total quantity produced in 1913 being 1,791,800 tons, valued at $1,895,991. This is an increase in quantity of 326,414 tons and in value of $465,520 over the production of 1912. The average value per ton rose from 97 cents in 1912 to $1.05 in 1913. The revision of the tariff on glass seems to have had no effect on the production of glass sand, if we may judge by the quantity reported sold.

Grinding and polishing sand fell off 344,490 tons from the production of 1912, in which year the production exceeded that of 1911 by 347,235 tons. The value of the product in 1913 was $540,399, or $91,737 less than in 1912.

The production of fire and furnace sand remained practically the same, totaling about 519,000 tons, and the output of engine sand reported was about 255,000 tons less than in 1912.

Paving sand production nearly doubled in quantity in 1913. The production reported was 3,335,508 tons, valued at $1,020,389, as compared with 1,788,530 short tons, valued at $670,680 in 1912, an increase in quantity of 1,546,978 tons and in value of $349,709.

Railroad ballast sand is this year separately recorded for the first time. The reported production of 2,335,196 short tons, valued at $266,852, is not the total quantity of sand ballast used by the railroads in the United States in 1913, for the reason that some railroads keep no record of the quantity of sand produced and used by them in making cuts and ballasting their road beds, it being with them only a matter of moving material from one point on the right of way to another point. The quantity and value given above were actually reported.

The gravel figures for 1913 do not include a considerable quantity of chats or tailings from the Missouri zinc mines. The production of chats in Missouri and Kansas in 1913 was 2,028,889 tons, valued at $304,333. The gravel figures do include 125,897 tons of chert, valued at $52,883, used for road building in Alabama.

The unit of measurement usually considered is the short ton. Much of the sand is reported as sold by the cubic yard, a cubic yard varying in weight from 2,300 to 3,000 pounds, according to the condition of the sand, according to the material of which the gravel is composed, and according to the custom of the locality. All of the glass sand is sold by the short ton, and also a considerable quantity of the molding, building, and other sand; hence the quantities reported were all reduced to this unit.

Lake Shore Sand & Gravel Co., Ltd., Toronto, Ont., will erect sand and gravel screening plant at Frenchman's Bay, Ont.

The Panhandle Gravel Co., Anderson, Ind., has completed the installation of machinery for dredging gravel from White River, and work has begun.

The Union Sand & Material Co., St. Louis, Mo., will rebuild its sand elevator at Drake, Mo., which was recently destroyed by fire with a loss of $25,000.

The Platte Gravel Co., of Weeping Water, Neb., is building a large stone-crushing plant at the Oleson quarry, a mile west of the town. According

SAND BANK OF THE WILCOX COMPANY AT JANESVILLE, WIS., 128 FEET DEEP.

to advices received the plant is to have a maximum capacity of 500 tons a day and the working force will be increased from 20 to 60 men.

The plant of the Alton Sand Works, at Thompson, N. Y., which was destroyed by fire recently, at a loss of $25,000, with insurance at $10,000, will be rebuilt, according to recent advices.

C. C. Martin, Kansas City, Mo., has purchased gravel deposits five miles north of Sulphur Springs, Ark., and will overhaul equipment on site and install new plant costing $10,000; mine from river bed. Daily capacity, 20 carloads of gravel.

The Frank A. Furst Realty Co., Baltimore, Md., has purchased from Isaac F. Filbert a tract of 150 acres situated on Rock creek in Anne Arundel county. The tract contains a large sand and gravel deposit which will be developed in the near future, it is claimed.

The Atwood-Davis Sand Co., of South Beloit, Wis., has purchased from R. R. Radway, formerly of Beloit, 80 acres of land adjoining its present plant. The tract is said to contain a deposit of exceptionally fine sand, 37 feet deep and containing at least 4,700,000 yards of sand.

The Mackinaw Sand & Gravel Co., of Peoria, Ill., with plants at Mackinaw and Chillicothe, have secured the contract for furnishing all the gravel and sand for the new state aid roads in Sangamon and Woodford counties. The state engineers passed upon the product and pronounced the sand and gravel quite the proper thing for building concrete roads and other state improvements.

Remarkable Sand Bank.

On this page is illustrated one of the deepest, if not the deepest, gravel banks in the country. It is operated by the Wilcox Company, of Chicago, and is located at Janesville, Wis. The deposit has a 128-foot face and comprises 15 acres.

The material is delivered by conveyor to a revolving screen, under which is a flat screen, and is then run into two settling tanks.

Two grades of sand are produced, torpedo and fine plastering sand, which are shipped to the Chicago yard of the Wilcox Company. A third grade, the coarser product, is disposed of in the territory adjacent to the Janesville plant.

NEW INCORPORATIONS.

Carnite Gravel Co., Wausau, Wis.; capital $25,000.

The Granite Gravel Co., Wausau, Wis.; capital $25,000.

West Dallas Gravel & Sand Co., Dallas, Tex.; capital $30,000. T. S. Craven and others.

Juniata Sand Co., care of Geo. E. Deppen, Sunbury, Pa., has increased capital from $10,000 to $50,000.

Potts-Moore Gravel Co., Waco, Texas; incorporated with $60,000 capital; J. Fred Smirg, R. P. Potts, and C. E. Moore.

Silica Ridge Products Co., New York City; capital $350,000; quarry and prepare for market silica and other mining substances. E. C. Miles and others.

Dartmoor, Ltd., Toronto, Ontario, incorporated with $163,000 capital; quarry stone, sand, gravel, etc.; Louis F. Black, Henry A. Hall and Wm. B. Henderson.

St. David's Sand Co., Ltd., St. Catharines, Ontario, incorporated with $50,000 capital; Lafay Christian Wilkis, George Bennett Durson and Mary C. Houston.

Chehaw Gravel & Sand Co.; E. D. Brewer, manager; general offices at Tuskege, Ala., proposes installing side tracks, machinery, bins, etc., at Chehaw, Ala., to operate plant for mining sand and gravel.

Trinity Sand & Gravel Co., Trinity, Tex., will develop gravel, stone and sand deposits and will probably increase capacity; will install hydraulic screen for gravel crusher and sand drop for loading.

The Southern Pacific Co. has placed a contract with the Smith-Powers Co., San Francisco, Cal., for 600 carloads of gravel to be delivered at North Bend., Ore., to be used in building a bridge across Coos Bay. Deliveries have just started and are going at the rate of 75 cars daily from the pits on South Coquille river.

The Kansas City (Mo.) Sand Co. has continued a business campaign of proportions and has added several good-sized contracts to its string. The latest to be secured is that for the new Muehlebach hotel, on which excavating is about completed. The Kansas City Sand Co. will deliver about 15,000 yards to the site at Twelfth and Baltimore. The company also has secured additional contracts for a big department store, though this is more in the nature of an extension of an old order, as it has delivered sand there for some time past.

The Parkersburg & Marietta Sand Co. has completed the rebuilding of its plant on Lubeck avenue, Parkersburg, W. Va. This is now one of the finest plants along the Ohio river. The company built a new retaining wall, enlarged its storage yard and doubled its capacity by purchasing an entire new equipment.

The John H. Miller Sand Co., located near Burnham, in Mifflin county, Pa., has been organized to mine the best grades of glass sand. Six thousand feet of 44-gauge railroad operated under electric power will transport the sand to the washeries near Burnham, where it will run through the entire process of cleaning, that essays 99½ per cent of silica, under the gravity system into the cars for shipment to any part of the world.

The Lake County Gravel Co., which is operating an immense plant in Libertyville, Ill., near the Desplaines river, in a couple of months is to have one of the largest and most complete gravel plants in the state. The main building when completed will be 10x55 feet and 60 feet high. This building will be used as bins for sand and gravel with machines to raise and dump the material into the bins. The stone crusher building, separate from the other one, will be 22 feet square and 58 feet high.

M. E. Maney, of Smithville, Texas, who owns a large deposit of gravel suitable for road building is shipping considerable quantities of it into the city of Houston. Mr. Maney has installed a steam shovel and is preparing to load this gravel in trainload lots. He also has a large deposit of high-grade concrete sand which he is shipping to San Antonio, Gonzales and other important points in south Texas. He expects to improve the handling of this material by putting in a dragline scraper and a screening plant.

The Raymond W. Dull Co., Chicago, Ill., sand and gravel specialists, report that they have designed and are installing machinery in the following plants: The Evans & Landor Co., Canton, Ohio, who have installed a sand and gravel washing plant for preparing materials for a sewerage disposal plant; Akron Gravel and Sand Co., Akron, Ohio, who are installing one of the largest plants in the country (daily capacity of 80 to 100 cars), and the Lake Shore Sand and Gravel Co., Toronto, Can., who have also installed a sand and gravel washing plant.

Ohio Fair Has Good Roads Day.

At the Ohio State Fair, held at Columbus, August 31 to September 4, Tuesday, September 1, was designated "Good Roads Day." Governor Cox of Ohio, State Highway Commissioner James R. Marker and Jesse Taylor, president of the Ohio Good Roads Federation, made the principal addresses. On the remaining three days a pageant illustrating the history of road transportation and showing the work of the State Highway Commission was given. Souvenir programs and buttons bearing the slogan

TYPIFYING UNIFORM CONSTRUCTION.

"I Am for War on Bad Roads," were distributed.

A new departure was taken this year at the Ohio State Fair. Highway Commissioner James R. Marker came to the conclusion that the 100,000 visitors at this fair, 50 per cent of whom would visit the State Highway Exhibit in the Good Roads building, ought to be instructed by way of contrasted floats in a grand pageant to the good of improved highways. At the same time this pageant depicted in a fine manner the evolution of traffic on highways, giving a very lucid and clear idea to the auditor and onlooker of the great strides that had taken place in 400 years in our traffic conditions.

This pageant was given on four days of the fair around the race track. The highway department entered seven floats, built expressly for it, which gave in contrast and relief some of the great work which it is doing and striving to do. The necessity of uniform construction, of uniform bridge building, a map showing Ohio's ten-year road program, and a big giant figure representing Belmont county as "the big boy" in county activities. The 88 visiting corn boys carried standards with appropriate slogans on the road program in their respective counties. There were also several burlesques in the shape of tumblers and rube band just to break the monotony, if there should be any, and also give a little laugh. The parade was headed by the Galion Boys Band, an organization of wonderful lilliputian musicians. All in all, it was a great educational event, which was made all the more lasting by the free distribution of a folder giving the pageant in detail and what each character and section represented. There were also some very interesting preachments on the good roads movement in various phases.

While this pageant was said to be the best effort made by a state department on educational lines, the Good Roads Exhibit was considered the best ever given by the state. The government had its models on display, and these attracted considerable attention. The material men and supply manufacturers took up the balance of the building with their exhibits.

TYPIFYING WHAT THE PEOPLE GET IN RETURN.

The results of this big demonstration will be lasting. Moving pictures were taken of the pageant and are to be shown all over the state this winter. It was the beginning of an educational campaign that Commissioner Marker intends to keep up as long as he is at the head of the Ohio State Highway Department.

The exhibition and pageant were in charge of a committee consisting of State Highway Commissioner James R. Marker, chairman; James W. Fleming, State Fair Board; Jesse Taylor, president, Ohio Good Roads Federation; L. H. Hawblitz, Inter-State Stone Manufacturers' Association; H. H. Macdonald, assistant secretary, National Paving Brick Manufacturers' Association; B. A. Matthews, Standard Oil Co. of Ohio; D. C. Boyd, Galion Iron Works & Mfg. Co.; Frank B. Dunn, Dunn Wire-Cut-Lug Brick Co.; M. J. Beistle, Barrett Mfg. Co.; James E. Johnstone, Universal Portland Cement Co.; L. M. Brown, New Columbus Buggy Co.; Harry R. Probasco, Mill Creek Valley Highway Association; G. F. Rudisill, Ohio Good Roads Federation; C. C. Jaynes, Ohio State Automobile Association; George E. Townsend, Kelly-Springfield Road Roller Co.; W. W. Williams, Contractors' Supplies, Columbus, Ohio; Lawson Moores, Cincinnati, Ohio; R. S. Wambold, Recreation Department, City of Columbus.

While Ohio today stands third among the states in having 15 per cent or more of her highways improved, Ohio is not yet prepared to have them all improved. And this is due to the lack of education on road betterment lines. It was the educational work and the propaganda established by the Ohio Good Roads Federation back in 1908 that started the ball rolling toward improved highways. Such campaigns brought about a new era in the Buckeye state. It gave birth to the State Highway Department and then fostered laws that enlarged the activities of this department.

The department last year received $440,000 from the general fund of the state, as an appropriation from the legislature. But this kind of work was slow and this body then enacted the inter-county highway system, defining certain roads to be state highways, taking in a grand total mileage of 9,400. But the coin of the realm was essential in carrying out this program of construction. This was secured through the enactment of the Hudson-Hite half-mill levy law, which is giving the state this year the sum of $3,500,000 for state aid, which, with a like amount put up by the 88 counties of the state, guarantees a total expenditure under the supervision of the State Highway Department of $7,000,000.

G. A. Boehm, of Maysville, Ky., has received a contract for the manufacture of 5,000 concrete blocks, to be used in the erection of a residence for H. C. Dietrich in the eastern part of the city. This is one of the largest concrete block jobs ever handled in that town.

G. E. Nunn, of Greensburg, Ky., was recently awarded a contract to build a cement block foundation for H. Shively's new residence on Columbia avenue. This foundation will be the first of its kind in the town and will mark the beginning of a new era in foundation work there.

Extensive plans are underway at San Francisco, Cal., for the repairing and laying of sidewalks throughout the city before the opening of the Panama-Pacific International Exposition next year. In parts of the downtown section of the city the sidewalks have been in need of repair ever since the conflagration of April 18, 19 and 20, 1906.

CLAY PRODUCTS

Unsupported Pavement Wonder to Highway World

BY HERSCHEL H. MACDONALD.

For 16 months a rural brick pavement 70 square yards in extent has hung over the void near Tinker's Creek, Cuyahoga county, Ohio. Now the county commissioners are preparing to put a roadway and a base under their pavement.

There is no apparent reason for their step, except the caution which is always counted an official virtue. The pavement had projected like a roomy shelf over the void, 80 feet long and 6½ feet wide, ever since March, 1913. For some time the pavement was used without a guard rail. Later a guard rail was erected to keep vehicles from venturing over the edge of the shelf.

It will be remembered that floods visited Ohio in March, 1913. Dayton was the heaviest sufferer. Northern Ohio, owing to the depth of its river valleys, escaped with little damage. Part of the damage, however, occurred where Tinker's Creek ran parallel to Dunham road. At this point a retaining wall of heavy stone blocks had been erected and the road built up to a height of some 12 feet above the bed of the creek. Upon the fill a modern brick pavement with a concrete base had been constructed.

The flood completely submerged the road for several days, and when it receded it was found that the wall had been undermined and scattered for a distance of several hundred feet down stream. Nearly half of the roadway had been excavated by the force of the water and the concrete base, deprived of its support, dropped to the bed of the creek.

All that remained was the actual pavement, an unbroken surface of well-grouted brick. The first impulse of the road authorities was to break down the brick shell to prevent its use and to rebuild the entire road from the bottom. A man with a sledge was set to work to demolish it. When he had labored for ten minutes and had only broken a single brick, the man in charge decided that such a pavement could not be much of a menace to traffic, and so allowed it to stand.

The fame of the phenomenon spread and people came by the score to behold a highway supported by the ether. Innumerable automobiles ventured to the edge of the overhang, until caution dictated a fence along its edge to prevent vehicles from plunging into the creek. A portion of the width of the overhang, however, has always been subjected to traffic since the washout.

The incident has proved a most effective lesson in a cardinal principle of good paving practice, a principle which has made Cuyahoga county roads conspicuous throughout the country. That is the proper use of a grout filler composed of one part Portland cement and one part of fine sharp sand.

This lesson was not learned in a day, either in Cuyahoga county or elsewhere. Its experimental era was marked by many roads of merit. The early builders were fortunate in being allowed to correct their own mistakes, as well as in the fact that they prepared a type of road that would withstand auto traffic long before that traffic could have been foreseen.

The Dunham road pavement presents no unusual features excepting the strange test to which it was subjected, which, impressive as it is, was not made under conditions the identical of which might not be found in any properly constructed brick highway.

Arch action can have played no part in maintaining the pavement's position. The longitudinal grade of the unsupported portion is an almost perfect level. There is a slight lateral crown comparable to a half-arch, but it is the crown rather than the base of the arch which is supported. The base has no support excepting the lateral bond.

Lest authorities seem to have been remiss in allowing repairs to be so long delayed, it is only fair to say that the principal delay was caused by a project to divert the road, which would have involved the condemnation of land and other lengthy controversy. The delay, however, has been an advantage from the standpoint of the test, as time and the frost action of a severe winter have made the demonstration daily more impressive and opportunity has been afforded for a large number of paving experts to visit the scene and glean such practical lessons as might be had from close inspection.

More than 150 engineers and road authorities from all parts of America went to Tinker's Creek in a body to satisfy themselves with regard to a situation which had been heralded to most of them through the technical journals. At first they approached it with caution, but curiosity and admiration overcame them and they were soon distributed over and under the shelf without apparent fear of collapse, so much were they impressed by the evident rigidity. No feature of the conference made so deep an impression nor excited so much comment and the program included visits to more than fifty miles of pavement in various stages of construction and age.

Cleveland and Cuyahoga county now boast more than 1,100 miles of brick-paved city streets and country roads, forming what engineers declare to be one of the most remarkable systems of permanent paving to be found in the world.

PHILADELPHIA BRICK ITEMS.

Philadelphia, Pa., Sept. 19.—S. B. Dobbs, brick manufacturer, Philadelphia, has booked orders for 1,500,000 bricks for the Hotel Traymore, Atlantic City; 800,000 for the Bell Telephone Co.; 700,000 for the Philadelphia Electric Company's power house and 300,000 for the Girard estate. In reviewing business conditions, Mr. Dobbs said: "Business with us during 1914 so far has been very satisfactory and if things continue we will experience a record-breaking year."

In order to facilitate their deliveries the Tansey Brick Co., Fox Chase, Pa., a suburb of Philadelphia, has added a four-ton auto-truck to its already well-equipped delivery department.

Extensive alterations are now being made to the Leuten Brick Co.'s plant at 28th street and Passyunk avenue. In addition to this the machinery is being generally overhauled and other necessary repairs are being made.

Greishaber & Dubber, brick contractors of Evansville, Ind., recently were awarded a contract for building a $4,000 brick building for August Gleisige. The Builders' Exchange handled the plans.

T. P. Clowers, of Clowers & Witt, who operate a tile manufacturing concern at Witt Springs, near Irvine, Ky., has been running the plant full time this fall. Business has been so good that the factory has been overtaxed and is far behind on orders at this time.

DELEGATIONS OF ENGINEERS WHO INSPECTED WASHOUT OF DUNHAM ROAD BRICK PAVEMENT.

WASHOUT OF DUNHAM ROAD BRICK PAVEMENT AT TINKERS' CREEK SUPPORTING AUTO.

Paving Brick Manufacturers Hold Interesting Convention

With the Erie county, New York, highways as a study of brick pavement construction for country highways, the eleventh annual convention of the National Paving Brick Manufacturers' Association spent two days of its three days' session out of doors. It was more than an association gathering, for visiting engineers, highway officials and representatives of technical schools swelled the attendance to nearly 300. The association convened in Buffalo, September 9.

Automobiles were used to convey the party over two extensive routes. The first day's trip was designed to observe construction details and the second to afford an example of the excellence of the finished highway. The first day's journey led south of Buffalo along a highway that is designed as a link in an improved road to Cleveland. Paving operations covering several miles and conducted on a large scale gave the visitors a chance to observe and discuss methods of excavation, drainage, foundation laying, curbing, expansion and grouting. Much favorable attention was drawn to a ma-

CHAS. J. DECKMAN, PRESIDENT NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION.

chine for mixing and spreading grout which was a novelty to many of the engineers present. The absence of even the smallest longitudinal cracks in completed stretches of pavement drew much inquiry as to the form of longitudinal expansion joint used.

Noon luncheon was eaten at Roycroft Inn, East Aurora. A banquet that evening at the Hotel Statler and luncheon the following day at the International Hotel at Niagara Falls were social features of the occasion.

The second day's trip led through the city of Niagara Falls, where inspection was made of one of the giant turbine power plants. From that point the visitors passed over one of the most magnificent roads in the world, both in point of scenery and paving, to Youngstown and Ft. Niagara on the shores of Lake Ontario. This road affords a continuous view of the Niagara gorge and its charm is enhanced by many curves and turns which, however, try the skill of the engineer and road builder. The company pronounced it one of the smoothest and most flawless pavements they had ever encountered.

Four companies were added to the membership list of the association as a result of the convention. Reports showed the industry to be in a flourishing condition and a suggestion was entertained looking toward the erection of a permanent association building.

Election of Officers.

The former officers were re-elected, as follows: President, Charles J. Deckman, of Cleveland; vice-president, J. W. Robb, of Clinton, Indiana; treasurer, C. C. Barr, of Streator, Ilinois; secretary W. P. Blair, and assistant, H. H. Macdonald, both of Cleveland.

The conference on the evening of the 9th between the members of the Brick Committee of the American Society of Municipal Improvements and the manufacturers developed many interesting suggestions. The chief concern on the part of the manufacturers seemed to be for some practical relief in the matter of a greater convenience for inspection.

After a full discussion the following resolution was unanimously passed, so that doubtless some practical plan for factory inspection will be promulgated by the American society at its coming annual meeting, which takes place at Boston, Mass., October 6-9.

RESOLVED. That it is the sense of this convention assembled that plant or factory inspection should prevail as against the practice of testing brick after they shall have been delivered on the job.

We therefore request the Brick Committee of the American Society of Municipal Improvements to recommend to that society factory inspection of brick for abrasion loss.

That Finishing Trowel.

Just about half the cost, possibly a little more than half of every concrete surface is due to the overuse of the finishing trowel. Probably there could be found in all the ramifications of modern industrial pursuits an easier way to kill time and roll up the cost of the job in the wages of a high paid man. Usually the troweling process begins an hour before it can be useful in any way, and very often it is continued for hours and hours by the light of lanterns during overtime at advanced schedules of pay. All the work that is laid after the noon hour is necessarily finished in overtime, so that only so much can be completed with the normal scale of wages as can be laid in the first two and one-half or three hours of the forenoon. It is a process or condition that adds very largely to the cost of all kinds of floors, walks, drives, steps and similar work, embracing probably half of all the concrete work done in connection with domestic improvements.

There is no particular reason why this class of concrete work should be rubbed up until it is as slick as glass, making the surface so slippery in cold or wet weather as to endanger the safety of limb or life even of the pedestrian in streets or the users of steps and floors. Overtroweling of often too rich top dressing has the effect of developing surface crazing or shrinkage, cracking of the surface, because it works up the water with excess of cement, and the sweep of the trowel often breaks up the incipient bonding of the very surface by its "drag" when that immediately below has already taken quite a firm set.

Fully 90 per cent of all the troweling is unnecessary and injurious, besides being immensely costly. The top dressing of concrete surfaces is altogether foolishly overdone.

It would be much better to adopt one course work, using one mixture of well balanced concrete for the whole work, and when such material is evenly placed and neatly leveled to brush the surface always in one direction with a broom or stiff brush as soon as placed. One hour afterwards the surface may be gone over with a more pliable brush, wiping in the same direction as before to evenly distribute the developed wetness. Such a finishing process will make a surface very much resembling sawed stone flagging; it will be free from crazing or hair checks if the mixture is anywhere near what it ought to be, and the labor bill of the job will usually be less than half per square foot as by the trowel finishing method. Cost has a whole lot to do with the volume of business, the amount of work done; and this is one route by which the concrete business can be expanded. Let us all give the brush a boost.

The Lyle Rock Co., Kansas City, Mo., is completing delivery of brick to several school buildings, including the Gladstone, Thacher and Whittier schools. The Hydraulic-Press Brick Co. is supplying 2,000,000 brick for the Karnes school.

Three new patent down-draft kilns are being built by the Standard Brick Co. at its West Side plant in Evansville, Ind. The addition of the three new kilns will increase the capacity of the plant about 20 per cent. The three new kilns will be used for the manufacture of impervious brick which is now in general use.

WILL P. BLAIR, SECRETARY NATIONAL PAVING BRICK MANUFACTURERS' ASSOCIATION.

W. D. Roy, president of the Coral Ridge Clay Products Co., of Coral Ridge and Louisville, Ky., reports a very active season for the new concern, which has at last got its kilns in satisfactory shape. Several more kilns are still to be built, however. The company is now making deliveries on about four contracts, amounting to nearly 5,000,000 brick and hollow brick in Louisville and vicinity.

J. A. Colby, promoter of the Whitewater Brick & Tile Co., recently launched at Whitewater, Wis., has succeeded in disposing of practically all the stock in the $120,000 corporation, and steps will be taken at once to erect the big plant which has been planned. I. W. Justice, of Dayton, O., an expert on the construction of clay plants, who will have charge of the erection of the plant, has been in Whitewater on several occasions and the work will be rushed. It is planned to erect the main building of the plant, the drying sheds and three or four dry kilns this fall. The remainder of the kilns will be erected next spring. The plant will turn out about 150 tons daily and will employ from 75 to 100 men.

THE PRODUCTION OF LIME.

(Continued from page 41.)

value of output, but a considerable increase in average price. The output of lime sold to chemical works, sugar factories, tanneries and dealers and for other uses increased both in quantity and value, while that sold as a fertilizer or soil sweetener decreased both in quantity and value. A considerable quantity of very finely powdered unburned limestone has also been used for the purpose of correcting soil acidity in recent years, and it is possible that this product may have had an influence on the decrease of lime used for this purpose.

Hydrated Lime.

The hydrated lime business has exhibited a marked advance each year since the first records of production were compiled in 1906, and although the increase of 18.32 per cent in quantity and 20.59 per cent in value for 1913 showed a very healthy growth it was much less than in 1912, when the increase was 36.87 per cent in quantity and 33.31 per cent in value.

The output for 1913 was 493,269 tons, valued at $2,205,657; for 1912 it was 416,890 tons, valued at $1,829,064, an increase in 1913 of 76,379 tons in quantity and of $376,593 in value. The average price per ton increased from $4.39 in 1912 to $4.47 in 1913. The number of hydrating plants was increased by 16, or from 64 in 1912 to 80 in 1913. Many of the new plants in 1913 showed but a small output for this year, but the outlook is very good for 1914. Twenty-four states reported hydrating plants in operation in 1913, as compared with 20 states in 1912.

Imports.

The imports of lime for consumption in the United States in 1913 were reported by the Bureau of Foreign and Domestic Commerce as 4,139 short tons, valued at $48,538, as compared with 4,268 short tons, valued at $48,153, in 1912, a decrease in quantity of 129 tons, but an increase in value of $385.

The tariff act of October, 1913, changed the status of imported lime somewhat. The duty on lime was formerly five cents per 100 pounds, including the weight of barrel or package. The present duty is five per cent ad valorem.

Exports.

In 1913 there were exported from the United States 294,746 barrels of lime, valued at $212,345, as compared with 260,669 barrels, valued at $199,515, in 1912.

HYDRATE MANUFACTURERS TO MEET.

A meeting of the Eastern hydrated lime manufacturers will be held at the Fort Pitt hotel, Pittsburgh, Pa., Sept. 30. The meeting will be social in its nature, but the discussion of improvements and new processes of manufacture will play a prominent part, particularly President Wm. E. Carson's method for testing the plasticity of lime, which is now receiving a great deal of attention from chemists in that section.

GENESEE PLANT BURNS.

The plant of the Genesee Lime Co., Honoeye Falls, N. Y., was destroyed by fire on August 27. The plant was partially insured. The company is planning to rebuild the hydrating plant and another kiln.

Prison Trustees, J. F. Thames, chairman, Natchez, Miss., proposes installing lime crushing plant.

John W. Dougherty and J. B. Lloyd, Prescott, Ariz., propose installing a 50-ton lime manufacturing plant on their property, near Putenney, Ariz.

GUN OPERATORS NOT PLASTERERS.

(Continued from page 44.)

done by workmen who were members of the plasterers' union, who were applying the plaster by the usual hand method, while the outside stucco work was being done by non-union members with the aid of a cement gun. Strikes among the interior plasterers were so frequent that the owners finally cancelled the stucco contractor's contract. Suit was then brought.

The Ebsany Fireproofing Co., F. S. Bridges, manager, 447 Confederate Life building, Toronto, Ont., is erecting a plant at Calcedonia, Ont., for the manufacture of gypsum blocks.

The Standard Wall Plaster Co., Louisville, Ky., capital stock of $10,000, filed articles of incorporation. The company will deal in building material. The debt limit is the same as the capital stock. The incorporators holding three shares each are: R. R. Williams, P. H. Ziegler and A. C. Humphreys.

CONCRETE BLOCK MANUFACTURERS ORGANIZE.

Concrete block manufacturers in Detroit, Mich., have organized under the name of Standard Concrete Block Manufacturers. The purpose of the organization is to make a more forceful and united effort to bring to the attention of the public the merits of concrete block as a building material, and particularly before the attention of the architects will the concrete block be placed. A number of methods of construction are represented, all of which meet the requirements of the city regulations in relation to the building code.

Eight concrete bridges are to be built in Sage County, Kansas, this fall, the total cost of which will be between $12,000 and $15,000. The state engineers are now completing the necessary survey.

ROCK PRODUCTS and BUILDING MATERIALS — *Index to Advertisements* — SEPTEMBER 22, 1914.

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BAGS AND BAG TYERS.
Curry Mfg. Co., J. P. (bag tyers).
Faeberhill Mfg. Co. (bag tyers).
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CEMENT, PORTLAND.
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Carolina Portland Cement Co.
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Columbus Chain Co., The.
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Ricketson Mineral Paint Works.
Williams, C. K., & Co.

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Clayton Air Compressor Co.

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Penn Metal Co.

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American Clay Co.
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Howells Mining Drill Co.
Loomis Machine Co.

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Meade, R. K.
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H. Miscampbell.

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Niagara Gypsum Co.
Ohio & Western Lime Co., The.
Owens & Son, John D.
Scioto Lime & Stone Co.
Security Cement & Lime Co.
Woodville Lime & Cement Co.

LIME, HYDRATED.
Hannibal Lime Co.
Kelley Island Lime & Transport Co.
Mitchell Lime Co.
The Moores Lime Co.
National Lime & Stone Co.
National Mortar & Supply Co.
Niagara Gypsum Co.
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Scioto Lime & Stone Co.
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American Steel & Wire Co.
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